Master Thesis

DEVELOPING A FRAMEWORK TO IMPROVE THE COLLABORATION IN THE FIRST PHASE OF THE TWO-PHASE MODEL.

A study on the collaboration between the contractor and client and the contribution of a collaborative identity.

SIMON KLEIN, 4323823
MARCH, 2022

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Developing a framework to improve the collaboration in the first phase of the two-phase model.

An explorative study on the collaboration between the contractor and client and the contribution of a collaborative identity.

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Preface

This report is the result of my graduation research project and was carried out for the master: Construction Management and Engineering. With this master thesis I am concluding my period of studying at the TU-Delft. The bachelor of Technical Policy Management in combination with this master has provided me with numerous experiences and a lot of knowledge and skills which I was able to pour out into the process of graduating.

The process of graduating itself has been very meaningful and I've learned a lot. The application of the knowledge from the courses and working on the biggest scientific project of my life untill now has been a quite a journey.

I could not have completed this process on my own and therefore I would like to share some thoughts of appreciation. First of all, I would like to thank God for providing me with everything necessary to complete my study, and all the other things He has given me during my time at the university.

Secondly, I want to thank all my supervisors for guiding me in this process. From the TU-Delft, especially Pedram Soltani and Marian Bosch-Rektveldt, who regularly where available for (online) consultation, which helped me a lot in structuring my reported and sharpening the content. Also, I would like to thank Ad Straub, the chair of the committee for his work on the background and sharp insights during the official meetings.

I would also like to thank my company supervisors Marieke Hietbrink and Ninke Hanenberg, for guiding me. Specifically for their guidance in finding the right topic, helping in finding the right projects and their feedback. I would also like to thank all the participants of the survey and especially the participants of the focus groups, who shared their insights. It was a privilege to meet and discuss the development in the construction industry with them. I would also like to thank all the employees of AT-Osborne that helped me in finding the right people and were often available for a quick brainstorm at the coffee-machine when Covid allowed.

I would also like to thank my family, roommates and friends for supporting me throughout the process. Especially in moments when difficulties arose, they were aways there for me.

Wishing you a lot of pleasure reading,

Simon Klein
Delft, March 2022

Executive summary

Introduction

A trend towards a more relational type of contracting can be noticed in the Dutch infrastructure industry. These so-called relational project delivery models are supposed to deal with the current challenges of regular cost and time overruns, the growing demand and the adverse relationship between contractor and client in traditional projects, leading to an unfair risk allocation, lack of collaboration and lots of conflicts.

Rijkswaterstaat, as one of the largest clients in the infrastructure sector, proposed a new vision for the market to make it more vital, resulting in multiple measures. One of the measures proposed to facilitate this change in the market is the use of the two-phase model, a specific application of a collaborative project delivery model.

The two-phase model is:
"An agreement in which the client combines the design phase and the first right to execution split up by a clear go/no go negotiation moment."

Three challenges to the use of the two-phase model are identified:

1. Strong more collaborative relationships are needed, the contractual system of the two-phase model does not automatically provide these.
2. The postponed price can make it difficult for the contractor to be open and transparent.
3. The collaboration between two different organizations (private vs public).

It is still unclear how such a first (design) phase should be organized to deal with these challenges. The concept of creating a 'collaborative identity' could potentially contribute to improve the collaboration in the first phase and deal with these challenges. This concept has only been argued to be of importance in alliance projects yet, so its contribution to the two-phase model is still unclear. Scientifically, a lot of research has been performed on collaboration in construction projects. There is however a lack of academic studies on the specific application of the two-phase model in the Netherlands and on collaborative identity.

Therefore, the following research question is proposed:

How could the first phase of the two-phase model in infrastructure projects in the Netherlands be organized to improve collaboration and how does the formation of a collaborative identity contribute to this?

The research objective is two-fold:
To develop a framework that can be used to improve the collaboration in the first phase and to clarify the contribution of a collaborative identity to this improved collaboration.

Literature results

To answer the research question, the research starts with a literature study to further clarify what is meant by collaborative identity and how it can be operationalized. Secondly, it is investigated how the two-phase model is currently being conceptualized.

Collaborative identity

A collaborative identity is a combination of aspects such as collaborative- values, principles and working practices according to the literature. As a specific definition is not present in current academic resources, an operationalization is performed defining collaborative identity in a theoretical model as shown in figure-A. Collaborative identity is often confused with a shared or collective identity. To clarify the difference two definitions are constructed. The narrow definition relates to the shared identity within a project. For this research a wider definition is used:

Collaborative identity is: *An identity within the project that distinguishes the organization and contributes to a collaborative mindset in the project organization.*

Furthermore, the relation between collaborative working-practices, collaborative principles, and collaborative values is further identified. An improved collaboration can be seen as a collection of collaborative values. Collaboration can be improved by implementing principles which can be done by making sure certain working practices are organized. This research mainly focuses on the principles and working practices. The theoretical model is shown in figure-A.

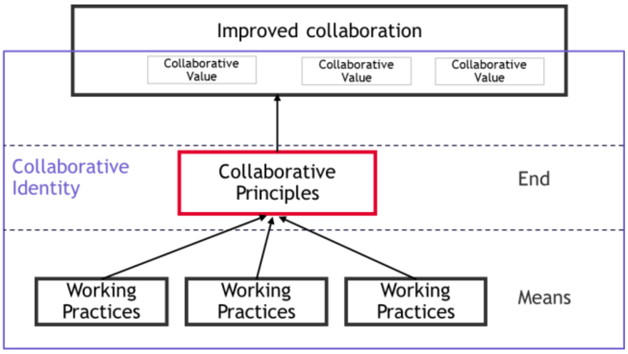

Figure A - Theoretical model

The two-phase model

The two-phase model is, compared to traditional models, unique due to the split between the design and the execution phase. The design phase can also be an optimization or engineering phase. This phase is called the first phase. The second phase is the execution phase of the project, and a tender phase is present before the first phase starts, indicated as phase zero. There are multiple applications of the two-phase model currently being used. Some of the applications make use of other models such as the bouwteam and alliance. Some are tailor made to the project's context.

Research approach

To meet the research objective, a simplified conceptual model is constructed. This model is based on the CIMO-method, which is used in literature to make propositions for the design of processes or organizations. The application of the CIMO method to the subject of the thesis is shown in figure B.

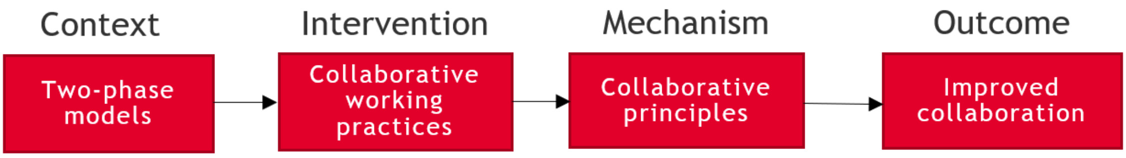

Figure B – CIMO logic

From 17 relevant sources, related to the two-phase model (such as the Alliance, Early contractor involvement and bouwteam literature) working practices and principles are collected. These principles and working practices are then carefully categorized and reworded to fit the context of the two-phase model in the Netherlands. In total 14 principles and 78 working practices are identified.

The principles and working practices were set out in a survey in multiple bouwteam and two-phase model projects. Additionally, benefits and challenges to the two-phase model were gathered in the survey. After the survey the results were analyzed and presented in a framework to two separate focus groups, one with the contractor and one with the client side of the project, resulting in a final framework that presents the most important principles and most important working practices. Additionally, some general conclusions are drawn from the process of designing the framework and conducting the focus groups.

Results

The survey resulted in a ranking of the collaborative principles for the first phase of the two-phase model. While the distribution of the principles was quite large the most important principles according to the survey are:

- There is open and transparent communication
- There is a common vision and objective
- Project decisions and problems are tackled together
- There is a shared feeling of 'us'
- The financial relationship is based on trust and transparancy

These principles can be implemented with the use of specific working practices. The participants were also given the option to indicate which working practices work against the implementation of the principle and provide additional working practices that might be missing.

In the thesis a clear division is made on which working practice belongs to which principle, this was confirmed by the survey, in which most of the working practices are ranked to be of importance for implementing the specific principle. Furthermore, the survey shows the combined importance of a survey and principle to collaboration in the first phase. The ten most important working practices are:

- Work with a **joint planning** for client and contractor.
- Organize an **informal meeting without an agenda** where sensitive information can be shared.
- Speak out about the **interests of the parent organization** in order to jointly arrive at a clear and comparable project vision.
- Create **a shared vision** at the beginning of the project through a workshop/vision day.
- **Align objectives** at the beginning of the project through a workshop/vision day.
- Arrange a **shared location** where the project team can work together.
- Create an (online) environment in which all **relevant information** is available to all team members
- Organize an **efficient meeting structure** with fixed meetings, agendas and reports.
- Organize structural joint sessions **to recalibrate and renew the vision and goals**.
- Regularly organize **joint meetings where decisions** are made.

These and the other most important working practices are added to a visual framework, which was discussed with experts from the client and contractor. This results in an update to the framework and some additional findings on the importance of the focus group. The most important findings from the focus group are:

- Agreements should be made on what is done with the **transparent sharing of information**. To prevent unwanted acting on conceptual documents.
- **Meetings should be clearly distinguished** between informal, working sessions and official meetings.
- Having **the right people** in the team is key for collaboration.
- **Mitigation** on risks should first be investigated before **allocation** them.
- **Fixed price elements** in the tender should be avoided.
- **Collaboration is an active project goal** and behavior should be discussed and rewarded.

The final framework is found in figure-C.

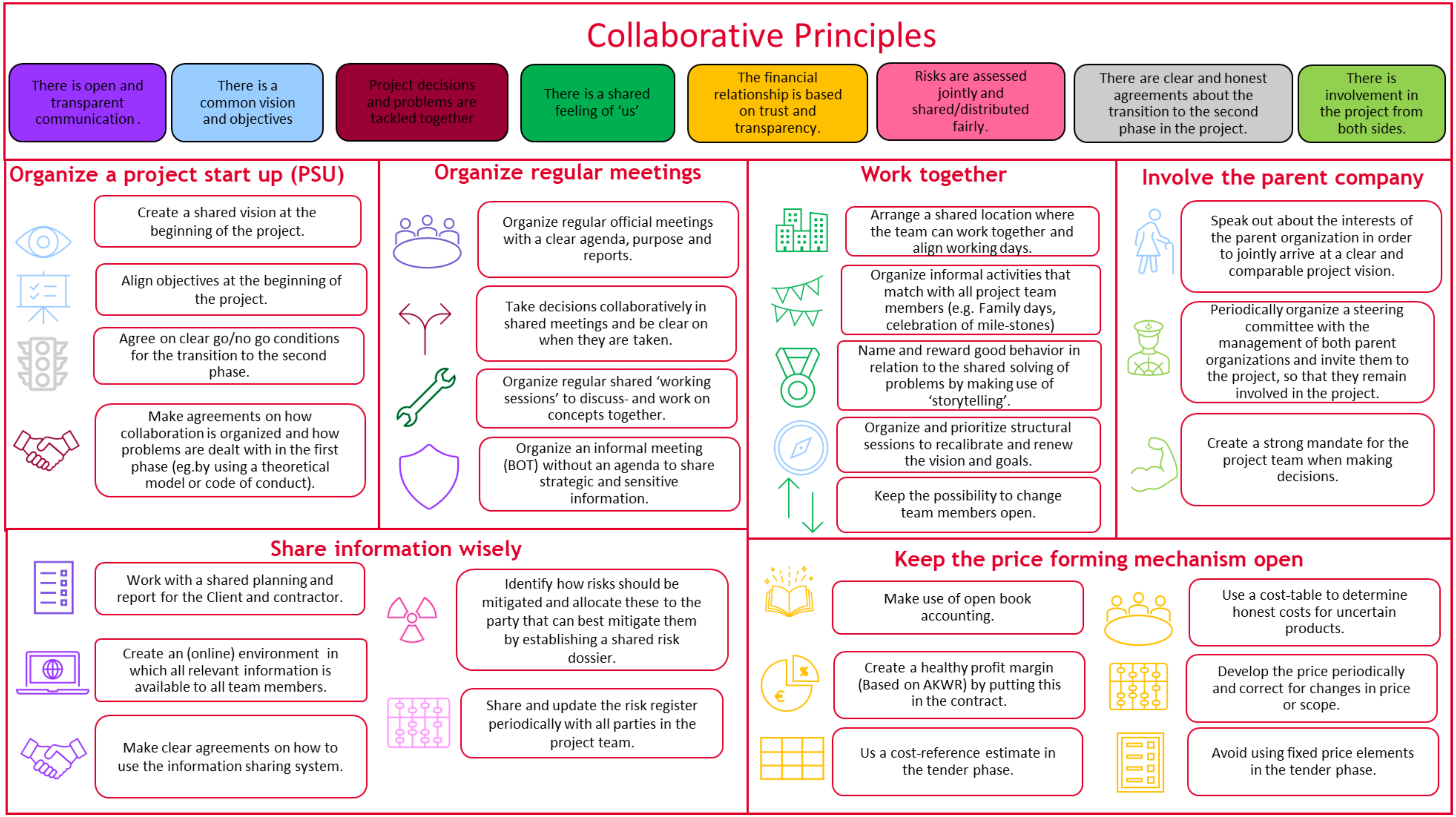

Figure C – Final Framework

Conclusion

The research concludes that a collaborative identity contributes to the collaboration in the first phase of the two-phase model. A lot of working practices which were identified as important by the survey and the focus groups relate to the forming of a project-identity. Furthermore, working practices that strive to create a shared organizational identity are also overly present in the framework. The large contribution of a collaborative identity is also supported by the most important principles which all relate to either collaborative values from the collaborative identity theory or show a 'common' or 'shared' aspect. Therefore, a focus on collaborative identity can significantly improve the collaboration in the first phase. From the focus groups it is found that creating one identity can be beneficial in engaging external parties. Furthermore, working with the same values and principles is important for the project. The creation of an integral team was considered to be of high importance which further supports the importance of a collaborative identity. During the conversations in the focus groups, it was clear that a sense of togetherness, the we-feeling or reasoning on best-for-project basis was important, even if a more traditional contractual basis such as the integrated contract (UAV-IC) was chosen.

For the organization of the first phase, the activities from the framework should be used as an inspiration. The framework shows the most important working practices and principles according to the survey participants and confirmed and edited with the feedback from the focus groups.

From the principles it can be concluded that constructing a shared project vision and shared objectives is considered to be of importance for the collaboration in the two-phase model. While the vision and objectives of the different organizations will still differ due to the difference in organizations, a focus on sharing the different interests is important. The project team should at the beginning of the first phase collaboratively come to shared goals and a shared vision for the project. Effort should be made to find these shared objectives to create a sense of togetherness, striving towards the same goals. These objectives and vision should be continuously used in the project to asses decisions, and the collaboration in the project.

Secondly, from the principles and working practices it is found that attitude and behavior of the team members is an important aspect to the collaboration. Related to the collaborative identity these attitudes and behaviors should be formalized in an agreement between parties on how the collaboration is done in the project. These attitudes and behaviors should be rewarded by sharing good examples. The attitudes and behaviors can be supported by clear agreements on communication, the solving of problems, clear agreements on the no/go moment and the financial structure of the project, as found in the framework. However, the willingness of team members to think in a best-for project attitude is necessary, and these specific arrangements do not guarantee the collaborative mindset by themselves. To further support a collaborative mindset the project team should regularly work together on one location in an integrated team. This means that double roles should in general be avoided to strengthen the integration of the project team. Informal activities matched to the project team, to maximize participation, could be organized to strengthen the feeling of togetherness.

Thirdly, meetings should be divided into different types. Three types of meetings were identified: Work sessions, Informal meetings and official meetings. The work sessions should be used to work on the design and other conceptual documents together. Official meetings should be used to make decisions. A clear agenda, purpose and reporting is necessary for these official meetings. It should be clear to project team members when which decisions are taken. Informal meetings should be used to discuss strategic and sensitive information without an agenda.

Finally, as a large part of the first phase is the price forming process, a specific focus is put on this aspect. Using fixed price elements in the tender should be avoided, as this limits the freedom of the contractor and client to come to an optimal solution during the first phase. Instead of asking for these fixed price elements the client should provide a cost-reference estimate. The price should be developed periodically and corrected for changes in scope and risks. Furthermore, a culture of transparancy and trust should be created around the financial relationship. This can be done by implementing open book accounting and using a cost-table to determine honest prices. To take away the discussion on profit a healthy profit margin should be part of the contract.

Recommendations for practice:

- Firstly, the framework as constructed should be applied to the organization of the first phase. For each project, the specific operationalization of the proposed working practices can be tailored to the specific context and product of the projects. The framework should however not be seen as a guarantee to successful collaboration. The success of the collaboration comes with the effort of team members to invest into the collaboration. Collaboration should be part of the project goals and carefully monitored and maintained.
- As the two-phase model requires a first phase in which the price and design are adaptive: awarding criteria should be based for the most part on quality, the price component in relation to open book method. Qualitive criteria could include a team assessment, as the collaboration in the first phase is very important and key individuals should be able to work with each other.
- As uncertainty can arise due to the postponed awarding of the execution and only the first right is given in the tender, clear go/ no-go requirements in the tender documents should be present.
- Organize an elaborate project start up in the first phase, to create a shared vision, align goals and identify the different interests of the parent organization. This is important as one of the biggest challenges in the first phase is to collaborate with a different organization in a joint effort to come to a design. Agreements on how the collaboration is organized using a code of conduct or a theoretical model is advised as this help in evaluating the collaboration with the team. The PSU is only the start of the collaboration however, the vision, goals and collaboration should be an active project goal.
- Implement an informal meeting (a BOT-meeting) and focus on building a strong integrated project team by working together on one location and organizing informal activities. Sharing best practices and good behavioural examples trough story telling is advised to further grow the way collaboration is done. This is especially important for the two-phase model, as the two organizations need to work together to come to a shared product and price.
- Working collaborative with one integrated system can be challenging, therefore clear agreements should be made on sharing of information, risks registers and a joint planning. Vital for the collaboration is the agreement on how these shared documents are used. Supported by a clear structure of official, work related and informal meetings.
- Furthermore, the parent company should be regularly updated on the project and should be included in the vision and principles of the two-phase model. As the two-phase model is still new and parental organizations, might need to get used to the ‘new’ way of working. If unavoidable conflicts arise due to interests from the parent companies’ organization these should be shared within the team and dealt with together.
- In the price forming procedure the price should be constructed using open book. As with the two-phase model the possibility to change the design should still be present after the awarding of the first phase. Keeping freedom in price is beneficial for both the contractor and the client as scope changes or changes due to unforeseen risks can still be dealt with appropriately in the first phase. To gain sufficient trust with the parent organisation, or to comply with European tender standards

it might be necessary to include more price components to the tender stage. A healthy profit margin is than advised combined with a general cost-estimate.

- Finally, the right people should be put in the teams, as the collaboration between client and contractor is very important in the first phase, and old/traditional behaviour can disrupt the collaborative process in the first phase team members should be able to collaborate in this 'new' way or be open to change or adapt towards this shared approach.

Limitations and Recommendations:

The reader should bear in mind that this thesis is focused on the first phase of the two-phase model and that the practioners involved in the survey and the focus groups are currently operating in this first phase. Therefore, the research is mainly based on experiences from these practioners.

The activities suggested for the first phase were based on their importance to collaboration, while a connection can be made between an improved collaboration and project success, this should be further investigated. Also, other activities, not relating to collaboration, and therefore out of the scope of this thesis can be missing.

Furthermore, the focus on working practices and principles that have already been proven to be beneficial to other relational project delivery models limits the scope of the thesis to what can be done to improve the collaboration. The focus of this thesis was therefore not on which activities could disrupt or negatively affect the collaboration, while some did surface during the discussion. The study was partially based on the collaborative identity theory, which meant that mainly 'soft' aspects were discussed.

Recommendations

- Future research can be conducted on the transition to the second phase, and the second phase itself.
- Secondly it is recommended to further investigate the success factors of the two-phase model in a broader approach then collaboration, also investigating the two-phase model, when some of the projects are finished is recommended.
- Thirdly, it is recommended to perform a more in-depth study on why the collaborative principles are labelled as important to the collaboration in the first phase.
- Furthermore, as the focus group could not agree fully on the implementation of a team assessment the implementation of team assessments could be researched more in depth. Limbergen (2020) already identified the motives of the client for using the team assessment, however the perspective of the contractor on the team assessment is still unclear.
- Finally, the concept of collaborative identity is only based on two other research projects, so more research in the direction of a collaborative identity is needed. This study concludes that the collaborative identity is important, and suggestions can be derived on which activities should be organized to form such an identity. However, a study confirming these working practices specifically to the formation of a collaborative identity should be performed, furthermore the conceptual model and the definition as presented in this chapter should be validated, so more research is needed on how a collaborative identity is formed, and for which other projects it can be beneficial.

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1 Introduction

In this chapter the topic of the thesis is introduced. Firstly, the context and motive for the chosen topic is discussed (1.1). Secondly a brief introduction in the trend towards relational contracts is shown resulting in the introduction of the two-phase model (1.2). Then challenges to the two-phase model are identified (1.3) and the problem statement is introduced (1.4). The problem statement leads to a research- objective, scope and questions (1.5). The chapter ends with an overview and guide for the reader (1.6).

1.1 Context and motive

Large infrastructural projects in the Netherlands tend to exceed their budget or duration. Less than 6% of all infrastructure contracts actually stay within the budget agreed upon during the tender and 60 percent of all the design and construct contracts is delivered too late (Rijkswaterstaat, 2019). In addition, a lot of large infrastructural projects are to be performed. A growth of 3.4% in total project scope is expected by Rijkswaterstaat in the coming years. (Rijkswaterstaat, 2019). This means contractors willing to engage into these large projects are needed.

A study performed by McKinsey company and Rijkswaterstaat shows that for large infrastructural projects often too much of the risk is put with the contractor (Rijkswaterstaat, 2019). A better division of risk between client and contractor is needed. Contracts such as DBFM contracts, which put all the risks at the side of the contractor are already not accepted anymore by large contractors such as Volkerwessels (Consultancy.nl, 2019). They would rather be working on fifty smaller projects than take on one large DBFM project. Compared to similar markets such as the dredging industry or the housing industry, the infrastructural markets is often higher in risk and lower in profit (Rijkswaterstaat, 2019). This can appeal contractors to switch their attention to these markets, while the expected scope is growing for the infrastructural projects.

This situation puts the infrastructure industry to some major challenges:

- If major contractors are not applying for the large projects anymore, market working, and competition is lower. This influences the price and quality of a project in a negative way (Rijkswaterstaat, 2019).
- Secondly, cost and time overruns are still happening to frequently. Mainly due to the change of scope during the projects after the final price and or to the design is set. (De Man et al., 2015).
- Thirdly a growth in large, complex and dynamic projects is expected and a change in scope towards more renovation and replacement projects (Rijkswaterstaat, 2019).

These challenges lead to a couple of developments in the Dutch construction industry such as the increased focus on sustainability and innovation. Furthermore, more and more projects are organized in programs, combining multiple projects in one program to increase innovation. A final development and most relevant for this research are the use of more collaborative forms of contracts.

Collaborative project delivery models

The way a project is organized and financed is often referred to as a 'project delivery model' in literature. A project delivery model is defined as: "A system for organizing and financing design, construction operations and maintenance systems that facilitates the delivery of a good or service" (Engebø et al., 2020. p). A new class of delivery methods is emerging that can be labelled as 'collaborative' seeking to align the client's interest to those of the market (Engebø et al., 2020).

This trend towards a more collaborative type contracting can also be seen in the Netherlands by the implementation of best value procurement in projects (Hosseini et al., 2017) and the increased use of models such as the alliance model (Engebø et al., 2020) or the Bouwteam model (Duurzaamgebouwd, 2020). Tender criteria other than price have become more popular in the Netherlands (Storteboom et al., 2017) and the 'market vision' Rijkswaterstaat pronounced that an increased focus on collaboration is key to transforming the current infrastructural market (Marktvisie, 2016).

To achieve the transition of the Dutch industry Mckinsey proposes several measures: implementing the two-phase model, introducing a portfolio approach, improve project conditions, due to involving the contractor early in the process and capitalizing on opportunities that are created by new technologies such as smart mobility (Rijkswaterstaat, 2019)

The two-phase model

One of the measures proposed by McKinsey is the use of the two-phase model (Rijkswaterstaat 2019). The two-phase model in general proposes a model in which the first phase of the model consists of a design (sometimes a plan- or understanding-) phase (Fijneman, 2020). In this design phase the final price for the project is postponed and risk and scope are often defined during this phase (Duurzaamgebouwd, 2020; Fijneman, 2020). After the first phase, a moment of price negotiation between client and contractor determines if a continuation with the same contractor in the second phase will occur (Duurzaamgebouwd, 2020; Nagelkerke & Dijke, 2020). In the second phase also referred to as the execution phase, most of the time a traditional or integrated contract is used. In general, the two-phase model is all about combining the strengths from the contractor and the client. (Nagelkerke & Dijke, 2020; Fijneman, 2020). (see figure 1-1)

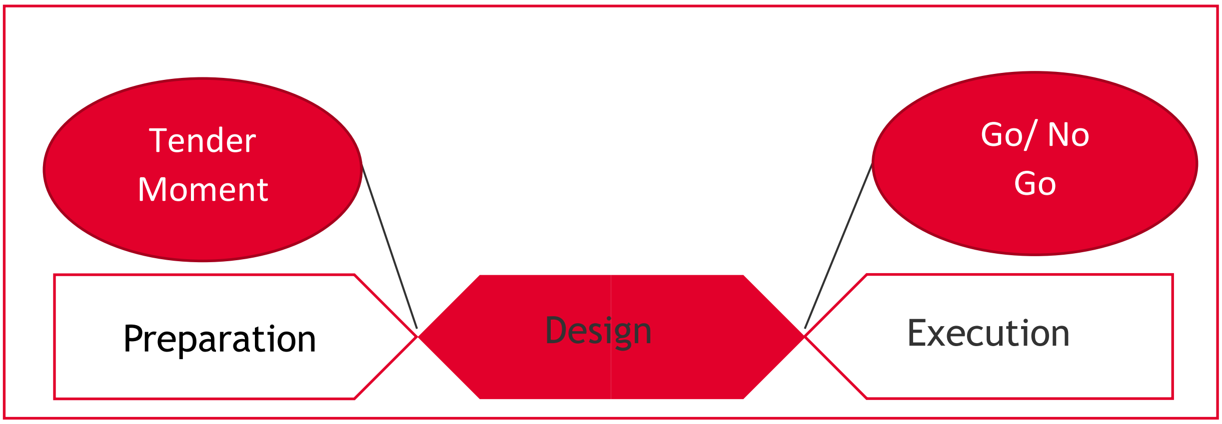

Figure 1-1: The two-phase model (Fijneman, 2020)

The two-phase model is argued to better divide the risks between contractor and the client (Rijkswaterstaat 2020; Clemens, 2021). Furthermore, lower tender costs for the contractor are expected and the two-phase model will lead to more competition in the tender phase (Rijkswaterstaat, 2020). Also, a collaborative design phase is expected to improve the innovation and productivity. This will in the long term benefit the market and public parties (Rijkswaterstaat, 2020).

Whilst the level of integration of the collaboration between the different set-ups of the two-phase model differs, collaboration between the client and contractor is in general considered to be of importance (Clemens, 2021; Fijneman, 2020; Nagelkerke & Dijke, 2019). RWS refers to the importance of collaboration for the success of the two-phase model (Marktvisie, 2016, Rijkswaterstaat, 2020). The collaboration should be based on values of trust, transparancy and equality (Rijkswaterstaat, 2020).

Therefore, the two-phase model can be seen as a collaborative project delivery method as described by Engebø (2020). Collaborative project delivery models require a change on a social, contractual and organizational level (Engebø et al., 2020). The collaborative approach changes the role of clients like Rijkswaterstaat to involved partner in the projects instead of its traditional role (Rijkswaterstaat, 2019). This transition is described in for instance the execution plan of Rijkswaterstaat mentioning a transition from the traditional opposing client-contractor situation towards a collaborative mindset (Rijkswaterstaat 2020). Due to this new role, collaboration becomes more important for the client and contractor as objectives need to be aligned and a focus on the final product is needed (Engebø et al., 2020).

1.2 Challenges to the two-phase model

As Engebø et al. (2020) identified, the implementation of a new method such as the two-phase model comes with some challenges. There is a need for some sort of innovation, conceptualization and a practical description (Engebø et al., 2020). Furthermore, it should be substantiated that the changes are actually for the better, and finally when implementing new methods, their effects should be researched (Engebø et al., 2020). Furthermore, collaborative project delivery models in general seem to create confusion on the specific roles and responsibilities of the parties (Engebø et al., 2020).

1.2.1 Contract form vs soft elements

The first field of interest lies within the newness of the two-phase model. As the model is only introduced officially over the last years there is a lot of unclarity on the specific implementation of the model. Suprapto, Bakker, Mooi and Hertogh (2016) showed that the use of a partnering contract such as the two-phase model does not automatically improve the project performance, but rather the relational attitudes and teamworking quality which effects the performance. Therefore, while the implementation of the two-phase model is suggested to improve collaboration by Rijkswaterstaat (2019), the collaboration can only be improved if the relational attitudes and team-working quality is improved. Furthermore, during a project, risks and unforeseen events may arise as the project progresses which in turn causes potential disputes and breakdown of the relationship. To cope with these threats' parties, need to build strong more collaborative and more flexible relationships (Suprapto et al., 2016).

1.2.2 Postponed price and scope

A specific challenge for the two-phase model is the postponed final price forming. In the two-phase model the final price is postponed untill after the first phase whilst collaboration is already necessary for a successful first phase (Fijneman, 2020). Projects with a relational character, such as the two-phase model, are often based on values as trust and transparency (Suprapto et al, 2015; Hietajärvi & Aaltonen, 2018) which are necessary for collaboration. In real life, these intended purposes are often not being met (De Man, et al., 2015). Especially in case of conflicts in the project it is easy to default to old traditional behavior (Engebø, 2020).

Nagelkerke & Dijke (2019) also stipulated this challenge in their evaluation on projects set-up in a two-phase manner. One of the major concerns is the uncertainty in the first phase for the awarding of the executing phase. Whilst innovation and creativeness in the design is expected from the contractor, this uncertainty might make the contractor reluctant to sharing valuable company resources and information.

1.2.3 Different organizations

Bakker (2010) already identified the challenges related to parent companies in project teams. Two-phase models are built upon trust, transparency and openness (Marktvisie, 2016; Nagelkerke & Dijke, 2019). A collaborative best for project mindset should be strived towards for the team that is part of the first phase in the model (Rijkswaterstaat, 2019). This collaborative mindset can be complicated by a largely neglected issue: the potentially conflicting loyalties of participants versus their loyalties towards their other ongoing activities (Bakker, 2010).

Secondly the two different organizations often have different organizational structures. These different structures result in a different institutional demand from both parties, particularly for the infrastructure projects as projects must comply with the different operating logics of government bureaucracies and business firms (Matinheikki et al., 2019). These differences are the so-called institutional logistics: “Institutional logics are widely available and shared prescriptions on the legitimate actions and so-called meta-theoretical frameworks of institutions that guide the behavior of organizations” (Matinheikki et al., 2019, p.299). This difference translates to the diverse ways of performing the work and also the overall cultural differences can make the collaboration more difficult (Hietajärvi and Aaltonen, 2018). The key managerial issue is to combine the efforts of these multiple and often divergent organizations (Matinheikki et al., 2019). These managerial issues are more prominently present in two-phase models compared to the traditional model, as the parties are often expected to work together intensively in the first phase (Clemens, 2021).

1.3 Previous research

Current scientific research already concluded that both industry analysts and project management scholars agree that more effort in owner-contractor collaboration is needed to improve the overall project performance (Suprapto, 2016). Furthermore, Suprapto (2016) concludes that teamworking quality and relational attitudes are vital to project success. Hietajärvi and Aaltonen (2018) and Ligthart (2021) argued that the formation of collaborative identity is vital to project performance in Alliance projects. As collaboration and collaborative values seem to be an important theme in two phase model, the formation of a collaborative identity could contribute. The importance of collaborative practices and shared relational attitudes has been shown to be of greater importance to project success than specific contract forms (Suprapto et al. 2015; Suprapto et al, 2016). However, the formal application of these practices does not automatically lead to a successful project without day-to-day managerial attention to teamworking process (Suprapto et al, 2015) and the presumed governability of a project is often not being associated with competing cultures and rationalities in day-to-day practice among project team members. (Suprapto, 2016). The formation of a collaborative identity can therefore be hypothesized to be of importance in the two-phase model as well, whilst this could improve the collaboration.

1.4 Knowledge gap

While extensive research has been performed on collaboration in general, the specific challenges to the two-phase model are new. As the challenges show it is unclear which activities lead to the desired soft elements of the collaboration in the first phase. Furthermore, the postponed final price can make the collaboration even more difficult, and it is unclear how to organize the first phase in such a way to optimize the collaboration while the price forming process is also being conducted. Finally, the role of the parent companies and the different organizations can complicate the collaboration, which is especially relevant for the two-phase model as different to an alliance no new organization is enacted, while intensive collaboration is needed in the design phase (Clemens, 2021).

Furthermore, following Hietajärvi & Aaltonen (2018) and Ligthart (2021), Existing empirical research on collaborative identity is only performed in the context of the alliance. Collaborative identity research focusses on working practices, principles, and values (Hietajärvi & Aaltonen, 2018). A more elaborate study is needed to validate the working practices, principles, and values in different context, such as the two-phase model. The current working practices and values as identified by Ligthart (2021) are often quite different in their level of implementation (e.g., ‘invest time into each other’ vs ‘create one location for the project team to work in’). The working practices therefore need some further classification, distinguishing between principles and working practices, before they can be applied in practice. Secondly, the different context of the two-phase model might change the importance of the working practices and even new working practices might be identified.

While the importance of collaboration in temporary organizations can be hypothesized as important a suggestion can also be made that such a strong focus on collaborative identity and culture is at all needed. Bakker (2010) argued that this might not be needed as temporary projects mainly focus on completing a specific task, however such a strong task orientation may potentially guide the project team members to build the project's identity and meaning around the concrete tasks and goals of the project (Hietajärvi and Aaltonen, 2020). More research on the contribution of a collaborative identity to an improved collaboration in temporary projects is therefore necessary.

Thirdly, most research performed on the collaborative identity and collaboration in the two-phase model is of a descriptive nature and often grounded in case study focused on understanding the process. The explorative knowledge is a good basis, however, to understand how collaboration can be improved and the importance of a collaborative identity, a more solution-oriented approach is needed to map out suggestions for the organization of the first phase.

To sum up the problem statement is as follows:

It is unclear how the first phase of the two-phase model could be organized to improve the collaboration between the client and contractor and how a collaborative identity could contribute to this collaboration.

1.5 Research objective

The aim of this study is to develop a framework that can be used to improve the collaboration in the first phase of the two-phase model. To construct such a framework the most important working practices and principles that lead to an improved collaboration should be identified. A second objective is to clarify the contribution of a collaborative identity to this improved collaboration. As previous research is mainly oriented on explorative research, the goal is to further operationalize the working practices and principles specifically for the first phase of the two-phase model.

1.5.1 Societal relevance

As the two phase-mode is a rather new model, the societal relevance is found in clarifying how the collaboration should be organized in the first phase. Delays and unexpected cost-overruns in projects can be mitigated. It is often unclear for governmental parties and market parties, how to organize the first phase and a framework which can be used to help setting up the collaboration is a contribution for the infrastructure market itself as well.

1.5.2 Theoretical relevance

As only a few empirical studies have been performed on collaborative identity, the expansion of the empirical study to two-phase models contributes to the current knowledge on collaborative identity. Furthermore, collaborative identity is often seen as a vague concept relating to values principles and practices. Operationalizing these into a conceptual model, is seen as a necessary step to better understand the concept and its relation to collaboration in general. Furthermore, scientific relevance can be found in combining the different literature streams into a full list of working practices and principles.

1.5.3 Research scope

The collaboration between contractor and client is most important in the first phase of the two-phase model. In this phase both parties need to come to an agreement on price and design. The first phase is highly dependent on the tender awarding criteria as this defines how the relationship between the contractor and client will be in the first phase. The second phase, which is the construction phase, is excluded from this thesis, while ideally the improved collaboration in the first phase also influences this phase positively. While the focus of this thesis is on two-phase models to construct the list of principles and working practices inspiration is put from a wider variety of collaborative forms such as the Bouwteam and the Alliance. The scope of the research is also limited towards construction projects in the Netherlands.

1.6 Research questions

The research objective can be achieved by answering the main research question. The main research question is stated as follows:

How could the first phase of the two-phase model in infrastructure projects in the Netherlands be organized to improve collaboration and how does the formation of a collaborative identity contribute to this?

The research question is focused on collaboration and collaborative identity. The specific definition of a collaborative identity and the connection to an improved collaboration is discussed in chapter 2.

The main question is answered in the process of subsequently answering the sub questions:

1. ***How can collaborative identity be operationalized?***
2. ***How is the two-phase model conceptualized in the Dutch construction industry?***
3. ***Which collaborative- principles and working practices from collaborative project delivery models lead to an improved collaboration?***
4. ***Which working practices and principles lead to an improved collaboration in the first phase of the two-phase model?***
5. ***How is the framework received by two-phase model practioners?***
6. ***What is the importance of a collaborative identity in the first phase?***

1.7 Thesis overview and roadmap for the reader

The thesis is divided into three main parts. To gain a better understanding on collaborative identity and the two-phase model a literature study was conducted. This study answered the first and second research question. When the literature study was completed a research design was made in chapter four. In the second part of the thesis working practices and principles were gathered from the different collaborative project delivery models and a list of these was compiled and operationalized for the survey in chapter five. Chapter 6 reports the results of the survey, and an analysis was performed leading to the most important principles and working practices. In chapter eight the evaluation that was conducted in the confirmative focus groups is discussed. Finally, the thesis is closed off by a discussion and conclusion, answering the main research question. The overview of the thesis is visually represented in Figure 1-2.

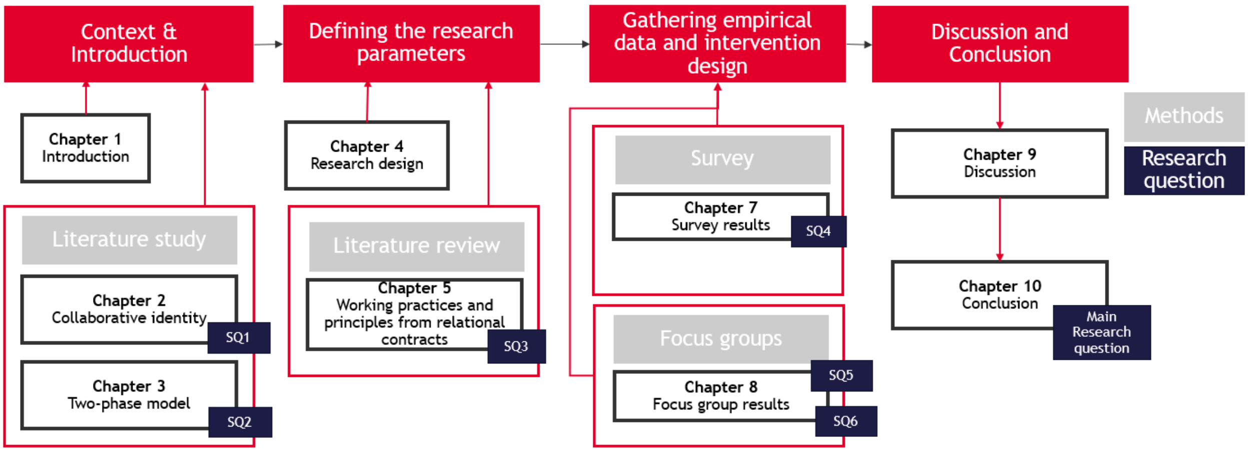

Figure 1-2: Roadmap for the Reader

2 Collaborative identity

This chapter reviews the concept of a collaborative identity, but firstly the wider concept of collaboration is defined (2.1). Then a definition for collaborative identity is proposed and the concept is explained (2.2). After this defining work, the working practices and values as proposed by Ligthart (2021) are evaluated (2.3). This evaluation leads to a revised conceptual model based on values, principles and working practices (2.4).

2.1 Collaboration

For the research into collaborative identity a project should aim to collaborate. If the project is set up in a way that only some coordination is needed this is not of interest for the formation of a collaborative identity. This means that especially complex and dynamic projects are suspected to benefit from the collaborative identity. As already identified the first phase of the two-phase model is built upon a vision that encourages this type of collaborating (Rijkswaterstaat, 2019).

The concept of collaboration, or 'collaborative' is often used in different context. Collaboration is often use in a general way and 'ways of working together' should not automatically be called collaboration (Himmelman, 2002). Four levels of working together can be identified: networking, coordinating, cooperating and collaborating (Himmelman, 2002). Networking is seen as the most informal and collaboration the most formal way of working together in a project (Himmelman, 2002). A different argumentation on the ranking is made by Mattessich and Monsey (1992) that identify cooperation as an informal practice where there is no common vision. Coordination involves more formality, requires a more formal communication and a common planning and the objectives are compatible according to Mattessich and Monsey (1992). "Collaboration is a 'durable and pervasive relationship' involving new structures, a common mission, shared planning, formal communication across multiple levels, pooling and jointly acquiring resources and shared rewards." (O'Flynn, 2009, p.114). As concluded by O'Flynn (2009) it is difficult to fully determine when cooperation, coordination or collaboration occurs because the definitions are interpreted differently.

Although a lot of ambiguity exists around the terminology of collaboration it is important to define what is meant in this thesis by collaboration. A few definitions can be found in the literature:

- *"A process in which organizations exchange information, alter activities, share resources, and enhance each other's capacity for mutual benefit and a common purpose by sharing risks, responsibilities, and rewards." (Himmelman 2002, p3)*
- *"Interorganizational relationship that relies on neither market nor hierarchical mechanism of control but is instead negotiated in an ongoing communicative process" (Lawrence, Phillips and Hardy 1999, p481)*
- *"a 'durable and pervasive relationship' involving new structures, a common mission, shared planning, formal communication across multiple levels, pooling and jointly acquiring resources and shared rewards."* (O'Flynn, 2009).

These definitions already show that collaboration is a voluntary practice in which the working together is a practice for mutual benefit. Defining a common purpose seems to be of importance of well. The collaboration is not controlled by market or hierarchical mechanisms but is an ongoing communicative process. Finally, it appears that: risk, responsibilities, and rewards are shared.

To further clarify what is meant in this thesis by collaboration the definition of Suprapto et al. is used (2015, p665) As the focus on behavioral interaction relates to the collaborative identity theory.

Collaboration is:

"The behavioral interaction between owner and contractor working together for the purpose of achieving specific project and business objectives by effective utilization of each party's specific resources and capabilities based on shared values and norms."

As can be derived from the definition collaboration is based on shared values and norms. These values can be seen as the collaborative values being mentioned before. These values and norms are utilized when the client and contractor are working together towards project and business objectives. To improve the collaboration, principles that describe this 'working together' should be identified. In further research Suprapto et al. (2015) identified that successful collaboration is influenced by three aspects: Relational attitudes, collaborative practices, and the team's capability. Especially the first two aspects further solidify the need to research which practices and principles lead to an improved collaboration. The use of practices and principles strongly relates to the collaborative identity theory which becomes clear in section 2.4. An argument can therefore be made that there is a strong link between collaboration in general and the collaborative identity formation. The exact contribution of a collaborative identity is however still unclear and should be researched.

2.2 Defining Collaborative identity

Now that is clear what is meant by collaboration it is important to also define collaborative identity. The theory of collaborative identity stems from the concept of organizational identity (Hietajärvi & Aaltonen, 2018). Organizational identity in the context of a project can be defined as: "features of an organization perceived by the project's members as central to its character or "self-image," distinguishing the project organization from others" (Albert and Whetten, 1985, as cited in Hietajärvi & Aaltonen, 2018). Thus, "project identity entails: the goals, key values, working practices and signs and symbols of the project, influenced by image and legitimized by feedback from the project's environment" (Hietajärvi & Aaltonen, 2018, p2).

From these two notions the step towards a collaborative identity is made: a collaborative identity according to Hietajärvi & Aaltonen (2018) refers to three aspects: Collaborative values, collaborative working practices and co-operation. He argues that these three aspects shape the project organization's self-image and distinguish the project from other organizations.

Hietajärvi & Aaltonen (2018) do not strictly define what a collaborative identity is. Furthermore, collaborative identity is not used often in scientific research. When collaborative identity is used it is often used in parallel to a collective identity (Ligthart, 2021). To define what a collaborative identity precisely means it is important to consider the research performed around collaborative identity. Interesting enough research on collaborative identity formation is often focused wider than the distinguishing aspects of an organization. In the research recently performed by Ligthart (2021) the working practices and values are considered to be of importance to the collaborative identity but are also considered of importance to the collaboration in general in the project organization. As mentioned by Ligthart (2021, p.48): "A list of ten collaborative values is established from literature, based on values that are stated to be needed for a successful collaboration, and values that are important characteristics for project alliances." In the research performed by Hietajärvi and Aaltonen (2018) the collaborative identity also contributes to a wider improvement on collaboration than purely the distinguishing, self-image role of the organization.

Therefore, two definitions can be derived. On aspect of the collaborative identity has to do with the creation of a shared identity building a feeling of 'us' and belonging. This shared identity can be seen as the narrow definition of a collaborative identity which relates purely to the working practices and values that contribute to the formation of a shared (collaborative identity). Creating such a shared identity closely relates to the organizational identity. The second definition focusses on the wider concept. This concept relates to the formation of an identity that is beneficial to the collaboration within projects. Creating a shared identity is only part of this collaborative identity, as other values and working practices can also contribute towards a culture of collaboration that do not necessarily need a shared identity. For instance, making agreements on problem solving and decision making.

Therefore, it makes sense to widen the definition. Collaborative identity is:

An identity within the project that distinguishes the organization and contributes to a collaborative mindset in the project organization.

This wider definition will be used in this research.

2.3 Working Values and Collaborative values

To investigate the formation of a Collaborative identity in alliance projects Ligthart (2021) argued in her research that in project alliances in the Netherlands the collaborative identity can be formed through a focus on collaborative values and working practices. How these collaborative values and working practices relate to a collaborative identity is discussed in this section.

2.3.1 Collaborative Values

Collaborative values are believed to guide behavior and determine behavior that is seen as desirable whilst reducing uncertainty (Puusa & Tolvanen, 2006). The collaborative values that were identified by Ligthart (2021) can be found in table 2-1. These values were gathered not only from collaborative identity literature, as the scientific size of scientific reviewed literature in temporary projects on collaborative identity is as large as one, but also form a wider range of collaborative insights, like the works as proposed in the introduction of this thesis. As we can see the collaborative values seem to overlap some of the values that are proposed to be of importance to the two-phase model such as trust, transparancy and honesty. (Rijkswaterstaat, 2019; Rijkswaterstaat, 2020). The values that are bolded are argued to be the five most important collaborative values for the alliance structure that lead to a collaborative identity.

Collaborative Values	
Honesty	Shared feeling of us
Trust	Group solidarity
Transparency	Equality
Best for project	Tolerance
Commitment	Consensus unanimity

Table 2-1: Collaborative Values from Ligthart (2021)

It should be noted that the shared feeling of us which can be seen as the narrow definition of a collaborative identity as proposed in chapter 2.1 is only sixth in the scoring. Furthermore, the Collaborative Values that are argued to lead to the formation of a collaborative identity are at least of similar importance to. This strengthens the suggestion that values that lead to an improved collaboration and the formation of a collaborative identity are interrelated.

2.3.2 Working practices

Working practices are defined as: The way work is usually done within an organization, thus actions to be executed (Ligthart, 2021). These working practices refer to the working practices as mentioned by Hietajärvi and Aaltonen (2018) and therefore relate to collaborative identity. To find consensus between two project alliances, Ligthart (2021) found that the working practices as shown in table 2-2 were most important. These working practices were scored by multiplying them by the importance of the collaborative values. Important to denote is that these working practices were only analyzed in the context of the alliance model and might be of different importance for the two-phase model. The full list of working practices is also considered in the next part of the research.

Most important wp's in both Alliances	Most important wp's in one alliance
Align Goals and identify joint goals	Daring to express concerns about the new way of working
Invest time into each other	Schedule and maintain face-face interaction
Reflection and self-assesment	Sharing information and resources
Create a shared location for colleagues to work together	Sharing knowledge
Cogitate and plan the next phases early	Stimulate transparent, open, and frequent communication
	Clear definition of roles and responsibilities
	Long term orientation (for the duration of the project alliance)
	Clear coordination from management
	Being positive

Table 2-2: Most important working practices for the alliance model (Ligthart, 2021)

2.3.3 Link between working practices and Collaborative values

Ligthart (2021) researched how a collaborative identity is formed in alliance projects. She argued that a combination of working practices and collaborative values lead to the formation of a Collaborative identity. The aspects of Cooperation were left out of scope as it would further complicate the mechanism and can be found in the working practices and Collaborative values as well.

In her research the working practices were ranked on their importance and are multiplied by the importance of the collaborative value which the working practice belonged to. The working practices and their importance can therefore not be seen as independent to the collaborative values. Although the reasoning behind multiplying the two is reasonable, this does complicate the definition of a collaborative identity in the conceptual model as drawn by Ligthart (2021) figure 2-1. The first definition sees the two aspects as a combination figure 2-2, but by multiplying the working practices with the collaborative value the importance of the working practice is dependent on its affiliated value (Figure 2-3).

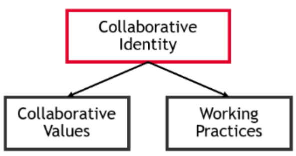

Figure 2-1: CI drawn by Ligthart (2021)

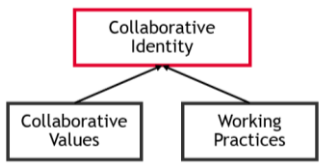

Figure 2-2: CI as proposed by Ligthart (2021)

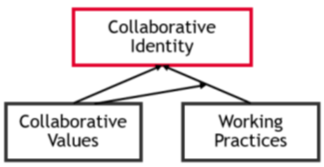

Figure 2-3: CI as reported by Ligthart (2021)

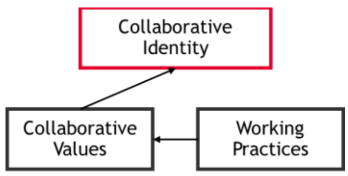

Figure 2-4: CI As concluded by Ligthart (2021)

As the values are reported and concluded on their own as well it seems that Ligthart wants to conclude a relationship that shows that working practices lead to certain collaborative values that lead to the formation of a collaborative identity (figure 2-4). The working practices influence the collaborative values which in turn leads to the formation of a collaborative identity. Hietjarvi and Aaltonen (2019) already identified that certain working practices influence a value. This does also make sense from the research done by Lighthart(2021), as working practices are part of a collaborative value. This means that the working practices are an input variable to the collaborative values.

2.4 Principles as a connecting factor

Looking at the working practices and at the goal to better organize the first phase in such a way that collaboration is improved it is important to see that some of the working practices that were concluded for the alliance are rather practical (e.g., Create a shared location for colleagues to work together), whilst other working practices are more general and in need of implementation (e.g., Invest time into each other). As Hietajärvi and Aaltonen (2018) also concluded there are certain principles that are important within an organization and influence the formation of a collaborative Identity. These principles should not be confused with working practices that are specific. Therefore, it is important to distinguish collaborative principles and collaborative working practices. As shown in figure 2-5, the collaborative identity in this research is not seen as the intended goal in the project team. The goal is to improve the collaboration, collaborative identity is a combination of aspects that contribute to the improved collaboration.

The difference between principles and values lies closely to the difference between norms and values. Values are important beliefs of a person within a community. Norms are action guided rules (The Embassy of Good Science, 2021). The norms are actual rules that can be guided.

Clarification on the different levels:

Collaboration: Output variable that can be improved by striving towards certain principles trough implementing working practices.
Collaborative values: Guide behavior, reduce uncertainty and determine which type of behavior or situations are desirable
(Collaborative) principles: General rules that guide actions taken in the organization.
(Collaborative) working practices: The way work is usually done within an organization and are actions to be executed.

2.4.1 Theoretical model

The analysis of the working practices and values resulted in the addition of collaborative principles to the theoretical model. To conclude this theoretical model is visually represented in figure 2-5. This model might not be complete as the collaboration is of course not only influenced by implementing internal working practices, but for the scope of this thesis this model is used. There are specific working practices which are actions that can be executed to reach a certain principle. These principles can be implemented by implementing specific working practices. If the collaborative principles are successfully created in the projects the collaboration should improve. An improved collaboration can be seen as the collection of important collaborative values.

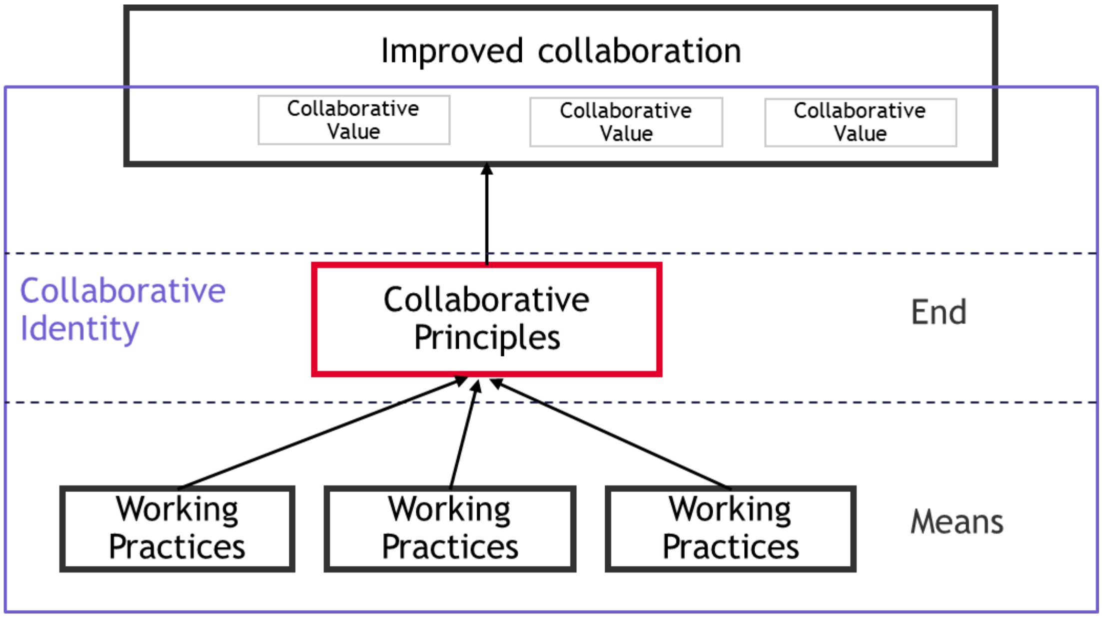

Figure 2-5: Concluding model of working practices, principles, and values (own figure)

3 The two-phase model

This chapter reviews the two-phase model as proposed by Rijkswaterstaat. A definition of the two-phase model is proposed first (3.1). Then the separate phases of the two-phase model are discussed (3.2). Thirdly the projects that have been executed with the two-phase model definition are discussed briefly (3.3) after which the difference of the two-phase model to traditional project delivery models is discussed (3.4).

3.1 Defining the two-phase model

As the two-phase model is not a specific contract, but rather a model intended to contribute to the strategy as worked out in the marktvisie document of Rijkswaterstaat it is important to further clarify what is meant by a two-phase model. There is no strict definition of the two-phase model, but multiple projects are regarded as such. Some of these projects have been evaluated and are analyzed to arrive at a definition.

The two-phase model approach is introduced by Rijkswaterstaat to reduce the number of unforeseen risks that are put with the contractor (RWS, 2019; De Man et al. 2015). The risks for the contractor are often too high (RWS, 2019) compared to other branches of the construction industry such as the housing market. At the same time the expected scope of all infrastructural projects is expected to grow (RWS, 2019). With the margins being low and risks often high for the contractor a new approach is needed to keep a competitive field in which contractors are still willing to engage in the large complex infrastructural projects.

A second reason for implementing the two-phase model approach is the late changes in scope during projects (De Man et al., 2015). As many projects still run over time or budget a lot can be gained by involving the contractor in an earlier stage in the project to prevent scope changes later.

As mentioned before there is no specific definition mentioned in the marktvisie report that introduces the two-phase model (RWS, 2019). However, some aspects can be identified as typical to the two-phase models. These typical aspects can lead to a definition.

Firstly, two-phase models involve the early participation of the contractor. This involvement can have multiple reasons, which will be worked out further on in this chapter. However, across all applications of the two-phase model the contractors are involved early in the so-called first phase.

Secondly a two-phase model, as evident in the name of the model has a so called 'split' in the model in which the price is negotiated and made definitive by the contractor and client. Different from traditional models, the decision to enter the execution phase of the construction is postponed to this moment after completing a design or exploration/understanding phase (Fijneman, 2020).

This leads to the following definition that is used in this thesis report:

Definition:
An agreement in which the client combines the design phase and first right to execution after a clear go/no go negotiation moment.

Some notes should be made with the definition. The design phase is not always a clear design phase, but is sometimes deployed as an optimization, engineering or understanding phase (Fijneman, 2020). Furthermore, it should be clear that after the awarding of the agreement to enter the two-phase process there is no competition with other contractors. Some discussion is present on what the initial agreement is made on. Tendering for two separate phases is suggested by some remarks made by Rijkswaterstaat (2019). However as concluded by Brinkman (2020), it seems like the intended method is to tender for both phases. The agreement is then made on the design phase, and a first right to execution, which can be set up in different variances. Finally, as mentioned by Fijneman (2020) for the definition of the two-phase model the design phase or optimization should be completed by activities from contractor and client to work together towards a final design.

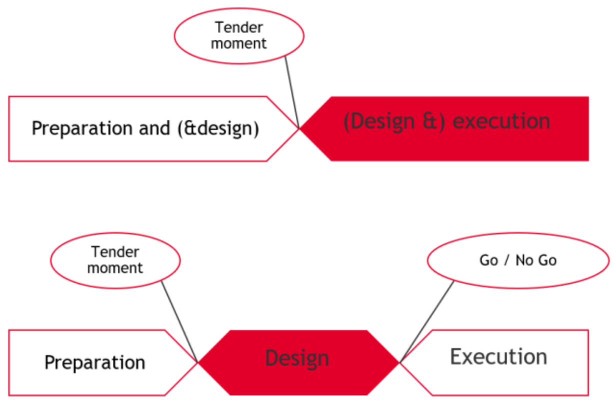

Figure 3-1 The traditional model and the two-phase model (Fijneman, 2020)

The difference between traditional contracts and the contracts described as a two-phase model agreement can be seen in figure 3-1. When looking at the definition and specific aspect of a two-phase model similarities between the Bouwteam model occur. The relation of the two-phase model to the Bouwteam model is discussed more elaborately further on in this chapter but is important to distinguish that the Bouwteam model is only a specific implementation of the two-phase model as two-phase models can be set up in a wider variety than bouwteams (Fijneman, 2020).

3.2 Phases in the two-phase model

The two-phase model consists of two-phases. Before the first phase starts there is however a tendering phase. This tendering phase often determines the conditions through which the first and second phase can be set up, as the client enters requirements in this phase. As Brinkman (2020) already mentioned this might bring up some confusion whilst the Early Contractor theory (ECI) regards to this phase as the first phase. To avoid any confusion in this report the selection phase will be called phase 0. The separate phases and the decisive moments for the two-phase model are explained in this section.

3.2.1 Phase 0: Tender phase

Before a contractor and client engage in a two-phase model agreement a tender phase is conducted to select a contractor. Traditionally this phase is focused on scoring on the lowest price or Meat (Most Economic advantageous) criteria (Chao-Duivis et al., 2018). However, for most two-phase model the price is not certain yet as this will be concluded after the first phase. This uncertainty leads to the first challenge of the Two-phase model. Brinkman (2020) researched the legal possibilities of not including the definitive price forming in a wider range of two-phase tendering. He concluded that a certain amount of price indication should be included in the tendering phase to meet European regulations. The financial criteria should be formed at least in a quantitative manner, ideally complemented by a qualitative manner (Brinkman, 2020). In a more general form, the award criteria can be set up by awarding the best quality-price ratio. This opens the possibility to include a collaborative assessment criterium (Limbergen, 2020). The procurement procedure should be set up ideally in the form of a competitive dialogue as this positively influences the project performance (Eriksson & Westerberg, 2011) and can help in clarifying the uncertainties and complexities of the project (Brinkman, 2020). Finally, it is important for the tendering phase to be clear on the object that must be build, and how the first phase will be implemented. As brinkman (2020) concluded: “in multiple cases they referred to a 'Bouwteam', while the contractor does not appear to have an advisory role as usual with a Bouwteam but bears ultimate responsibility for the design result. The specific responsibility of the contractor can be defined in the exploratory phase during the dialogue as well.

3.2.2 Phase 1: Design phase

After the project has been awarded to a contractor the first phase of the two-phase models starts. This so-called design phase differs the most for the different applications of the two-phase model. The phase is not always a specific design phase but can also be an optimization of the already available conceptual design, or functions as an understanding phase of the contractor.
In general this phase functions as a phase in which the contractor and client work towards a definitive price. To arrive at a price agreement the uncertainty should either be taken away or divided by risk allocation between the contractor and client. The uncertainty in the project can come from multiple occasions. For instance: 1) the design parameters can still be unclear, 2) The design is available, but needs to be reviewed by the contractor, (Nagelkerke & Dijke, 2020). 3) The design needs to be optimized by the contractor.

3.2.3 Go/No go moment

The Go/no go moment is what differentiates the two-phase model from the traditional model. Within the whole of the two-phase model an intention is pronounced by the client. However, the client and the contractor have an option to opt out of the agreement after design and before continuing to the execution phase. The specific criteria for such an exit should be clearly defined in the tendering phase (Brinkman, 2020). One important aspect is the price negotiation. But the collaboration during the first phase also influences the decision. At the go/no go moment the price is defined, and a traditional or integrated contract is signed for the execution phase. For either the client or contractor to step out of the agreement, exit criteria are important.

3.2.4 Phase 2: Execution (Out of scope)

The execution phase is the final phase of the two-phase model. This is generally done in a traditional (UAV) or integrated contract (UAV-GC). It is expected that due to the increased collaboration between contractor and client in the first phase, there will be less unexpected incidents in this phase. However, this does not mean that the benefits of the improved collaboration cannot be used in the execution phase. The relationship as created by the improved collaboration in the first phase can also benefit the second phase.

3.2.5 Different forms of setting up the two-phase model

As Clemens (2021) concluded different collaborative forms are currently being used. The two-phase model is divided into two categories. 1) Two-phase models that make use of specified project delivery models. such as the Bouwteam agreement and the alliance structure, and 2) the tailor-made two-phase models Another way of distinguishing between the different configurations of the two-phase model is the difference in freedom of solution and the integration of the collaboration (Fijneman, 2020). The choice for which configuration to choose is subject to these two aspects that is made (Fijneman, (2020). With an integrated collaboration a high level of use of expertise, experience and innovation is expected to be higher in this configuration, due to the equal roles of client and contractor. The coordinated collaboration is a more traditional approach in which the differences between contractor and client are clear (Fijneman, 2020). This might limit the effective contribution of combined experience, as the input of both parties is limited to their own role (Fijneman, 2020). The second distinguishing aspect is the freedom of the design space. This can be seen more as a given than a choice, but however the freedom that is given to the contractor to change the preliminary design and scope can result in an optimization or innovative mindset in the first phase (Fijneman, 2020). The four options resulting from these different options are shown in figure 3-2.

Figure 3-2 Different configurations of the two-phase model (Fijneman, 2020)

These different implications should be considered when constructing the framework, however for an improved collaboration specific contracts forms do not by themselves influence the collaboration (Suprapto et al, 2016). Therefore, it is expected that the different contractual forms used in the two-phase model do not influence the proposed improvements strongly.

3.3 Projects executed with the two-phase model

The approach to implement more two-phase models in projects has only been introduced in 2019 by RWS (Rijkswaterstaat, 2019). They proposed four projects as an experiment for the two-phase model (Rijkswaterstaat, 2020).

As these projects are mostly still in the tender phase, or the start of the first phase they can be difficult to analyze. However, projects that have applied variances of the two-phase model can be analyzed to gain a clearer understanding on the model and possible working practices. An evaluation has recently been performed by RWS on five projects. This evaluation can be taken as the basis to find principles and working practices for the design (Nagelkerke & Dijke, 2020). The evaluated and pilot projects are shown in table 3-1.

Official Pilot projects	Evaluated projects (Nagelkerke & Dijke)
A27 Houten Hooipolder	Nijkerkerbrug
De ring Utrecht	Krib- en oeververlaging Pannerdensch Kanaal
De a73 roertunnel en tunnel Swalmen	Stadsdijken Zwolle
De A12 IJsselbruggen	Zuidasdok (previous contract)
	Zuid-Willemsvaart

Table 3-1 projects executed with the two-phase model

Appendix A2 shows a table that shows a full overview of the evaluated projects by Nagelkerke & Dijke (2020) as mentioned above. The table shows for each project the motive for using the Two-phase model, scope, price forming, Risk allocation and team integration.

3.4 Traditional model vs two-phase model

The proposed two-phase model is supposed to bring change to the situation as described in the 'marktvisie'. This change can be found in transition goals as mentioned by RWS (2019) and is developed by changing various aspects from the traditional to the two-phase model. These differences are important as these should be considered when developing the framework. In table 3-2 an overview of the developments is found. (Nagelkerke & Dijke, 2020).

Traditional	2-phase model
Insufficient attention to risks with definitive price agreements before sound agreements about risks can be made	**Price agreements more adaptive** during project lifecycle with continuous eye for risk mitigation, risk management and risk distribution
High failure and indirect costs that do not contribute to the realization of the project.	**Failure and indirect costs are at a level acceptable** to all parties.
Market dynamics and tender forms focus on business models in which **realizing physical turnover is central**	Market dynamics and tender forms focus on business models in which the **creation of social added value is central.**
Opportunistic behavior and unhealthy **commercial pressure** in winning contracts	**Honest discussion about risks and information** needs and realistic registrations
Financial relationship between OG and ON based on **distrust and concealment**	Financial relationship between client and contractor based on **trust and transparency**
Tendency to **underestimate** in (long-term) **budget** requirement forecasts	**Fair forecasts** with real margins for inherent risks and uncertainties
Strong focus on **short-term order book** without a clear long-term perspective.	Focus on **short, medium, and long-term development** of order book.

Table 3-2: Transition from traditional to the two-phase model. (Nagelkerke & Dijke, 2020)

To successfully conduct a two-phase model these changes should be present.

4 Research Design

From the problem statement it is clear that a practical approach is necessary. A current methodology that is often used to better organize certain processes is the Design Science Research methodology. Inspiration from this methodology to further identify the steps to be taken for the research is taken. This chapter is divided into two sections. First the research approach is explained (4.1) and secondly the research methods are explained (4.2).

4.1 Research Approach

A practical approach is needed to realize the research objective. A practice-oriented approach is meant to “provide knowledge and information that can contribute to a successful intervention in order to change an existing situation” (Verschuren & Doorewaard, 2010, p.45) The practice-oriented research is divided into several steps: 1) problem analysis, 2) diagnosis, 3) design 4) intervention and 5) evaluation. As is clear from the research objective this study is focused on the design approach: Developing an intervention plan to find a solution for the problem (Verschuren & Doorewaard, 2010). Due to this specific approach inspiration from the Design Research Methodology is set used as well.

DSR is a solution-oriented research method, which is specifically developed to bridge the gap of relevance (Hevner & Chatterjee, 2010). From the DSR methodology, specifically the CIMO-method is used to create the conceptual framework for this thesis.

4.1.1 The CIMO method.

The CIMO logic builds on the Technological Rule perspective. The definition of a technological rule is: ‘if you want to achieve outcome ‘O’ in context ‘C’, then use intervention type ‘I’ to influence mechanism ‘M’ (Denyer et al. 2008. Pg 395). Denyer et al. (2008) prefer the term ‘design proposition’ to ‘technological rule’, as the latter term suggests a rather mechanistic, precise instruction.

From the definitions, the goal of the method is to construct such design propositions in the form of a framework. It is important to further clarify the various aspects of a design proposition in the CIMO logic.

An intervention has a certain **Context**. The context can be seen as the surrounding factors to the problem. As noted by Pawson and Tilley (1997 in Denyer et al. (2008)) The social system will at least be affected by four contextual layers: The individual, The interpersonal relationships, Institutional setting and the wider infrastructural setting. For this thesis research as contextual factors the different collaboration models should be considered. These can be seen as the institutional setting. Furthermore, the different models will change interpersonal relationships. It should also be noted that the design propositions will be limited to two phase model although some findings could be generalized.

Design propositions propose certain **Interventions.** These interventions are the tools managers have at their disposal to intervene in certain situations. These tools can for instance be leadership style, training or performance management. Not only the nature of the intervention should be examined but also its implementation. In this case these interventions can be seen as the implementation of the collaborative principles, and thus the working practices.

A **Mechanism** is triggered by the intervention in a certain context. A mechanism can be for instance employees that spend more time on a certain task as they are empowered by their manager. In the current thesis the mechanisms can be seen as the collaborative principles. If the intervention is successful, this means these principles will be achieved.

A Design proposition has a certain **Outcome** that is the result of the intervention in its various aspects. In this thesis, the outcome is the improved collaboration during the first phase.

Concluding on the CIMO-logic it becomes clear that, the working practices can act as interventions, the principles as mechanisms that should be influenced. The improved collaboration can then be seen as the output. This relationship is applied to the specific context of the two-phase model. This is shown in figure 4-1

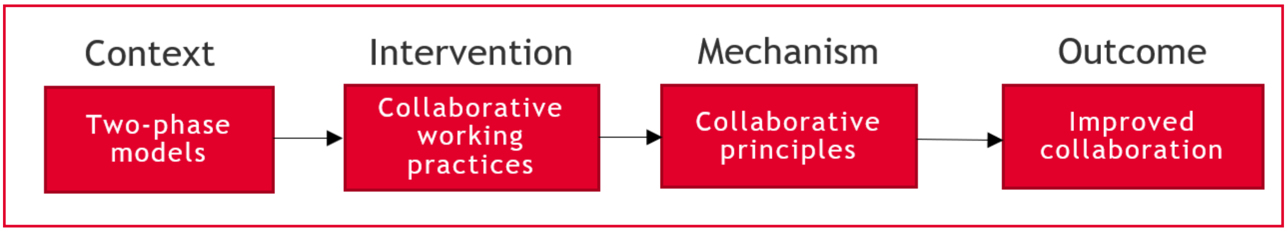

Figure 4-1: The CIMO logic

The collaborative values as introduced in chapter 2 can of course not be neglected in the total overview, but as this thesis aims to offer practical suggestions for the collaboration and values are more the by-product of carefully implemented principles they will not be considered for this thesis.

4.1.2 Operationalization of the research

Practice-oriented research is operationalized in 5 steps (Verschuren & Doorewaard, 2010). Not all steps can be fully taken, as the time of the thesis is only limited, and some steps have already been taken and are reported in the context and introduction.

The problem analysis is performed mainly in the introduction of this report. However, a further identification is done in the literature review in chapters 2 and 3. The results of the literature review in chapter 5 lead to a list of possible interventions and mechanisms in the form of working practices and principles.

After these working practices and principles were gathered, they were discussed with practioners from two-phase models by means of a survey, leading to a first design of a framework of interventions. This framework was then evaluated by two groups of experts from the client and contractor. This evaluation led to an improved framework concluding the design of the interventions. The results of the thesis are communicated by sharing the findings with the practicioners involved in the thesis.

The working practices and principles are therefore a main theme in the rest of this thesis. As they act as interventions and mechanisms to influence the collaboration. The roadmap as presented in the first chapter is expanded (Figure 4-2), by including the results from the methods, so that the steps in constructing the framework is clear.

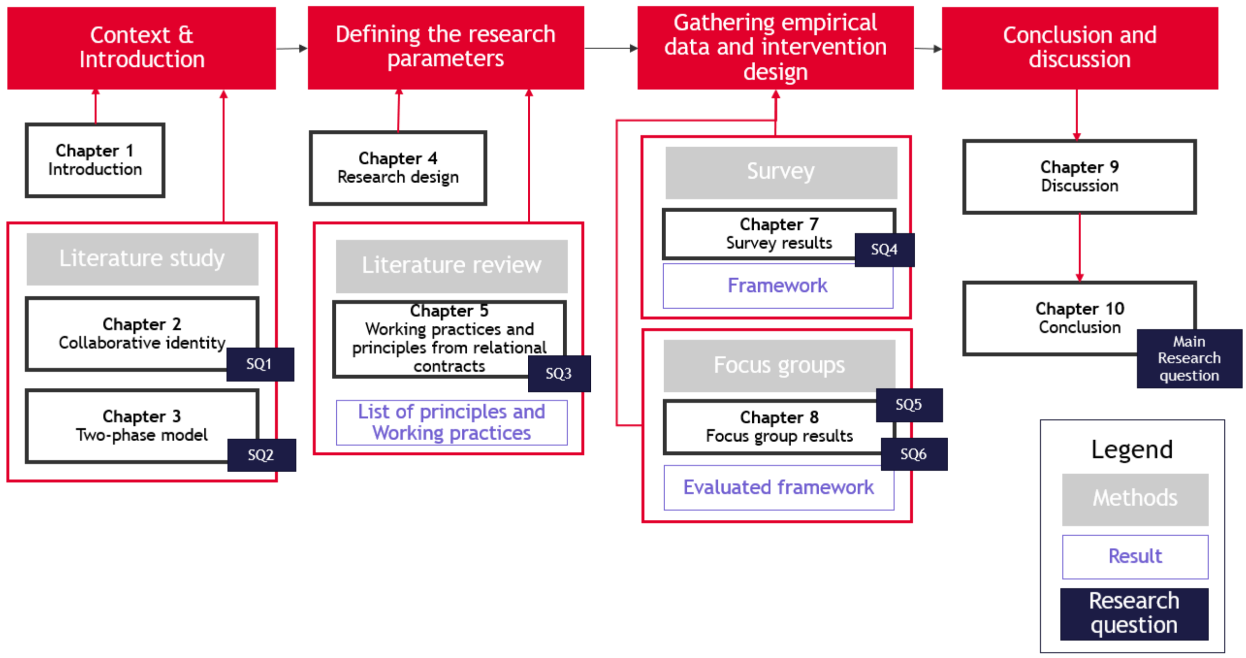

Figure 4-2 Operationalization of the research

4.2 Research Methods

As shown in the operationalization of the report, there are multiple methods that were used to gather data. Methods should not be applied lightly to performing research. The reason for applying these methods should be clear and substantiated by the researcher. Therefore, in this section the setup and the choice for the methods that were used in this thesis is reported

4.2.1 Literature Study

Two separate literature studies were conducted in this thesis. The first study was done prior to this chapter in chapters 2 and 3. The goal of this study was to further conceptualize the two-phase model and operationalize collaborative identity.

As the two-phase model raises a lot of questions, because it is a wide concept a literature review was performed on the conceptualization of such a two-phase model. This was done by analyzing governmental documents, websites from the contractors and project teams, theses performed, and similar methods using a two-phased method such as the Bouwteam model.

The second part of the literature study focused on collaborative identity. In the introduction collaborative identity is identified as being of importance to the two-phase model. Ligthart (2020) already started in identifying working practices and collaborative values. However, the classification of these working practices needed some more reviewing. Together with the research performed by Hietajärvi and Aaltonen (2018) collaborative identity was defined, and the working practices were redefined in terms of principles and working practices. The chapter on collaborative identity was introduced by assessing the importance of collaboration for the two-phase model.

4.2.2 Literature review

The second literature review as reported in chapter 5 was conducted to gather relevant principles and working practices. Different ‘streams’ of literature were considered: The collaborative identity theory; previous two-phase models; the alliance literature; the early contractor involvement literature and the bouwteam model literature. The goal of the study was to create a list that is presented to the practioners in the survey. It should be noted that the goal was not to verify which are most important, but rather to gather a wide variety of generally important principles and working practices to use for the survey and determine their importance for the two-phase model. To accommodate for this objective a qualitative systematic literature review was performed. A qualitive systematic review is performed to integrate or compare findings from multiple qualitative studies (Erasmus university, n.d.).

Database usage

Different databases needed to be consulted. The Alliance and Early Contractor involvement literature was found by investigating scientific databases such as Google Scholar and Scopus as these themes are well researched and documented. Scientific information on the specific application of the two-phase model in the Netherlands is missing in these databases. Therefore, the working practices and principles were gathered from the documents evaluating the two-phase model. For the collaborative identity theory this has only been reported in relation to infrastructural projects by Hietajärvi and Aaltonen (2018). Therefore, the thesis research of Ligthart (2021) was added. Finally, the bouwteam model is extensively researched in master theses, but no scientific articles were found. Therefore, the input from this specific application was mainly found trough the database of the TU-delft library and other universities.

Searching strategy

While on some of the models such as the Alliance a lot of research has been performed, this review is done in a purposive manner, limiting the number of suitable articles.

The databases as mentioned before were consulted to find the right articles. The method of snowballing was also used to find other articles related to the articles. Especially the scoping reviews were used to find the right articles.

Key words that were used to find the right articles were for instance: ‘success factors, principles, (best) practices and ‘benefits and challenges’. These keywords were used in combination with “Alliance” or “Infrastructure industry” or “Early contractor involvement” or “Construction industry” to limit the amount of articles

Inclusion/Exclusion criteria

For the gathering of principles there are a few exclusion and inclusion criteria to consider. The articles should report multiple principles and working practices to be included. This automatically limited the topic of the article as it should be related to the collaboration, success factors and/or principles and working practices. The articles were therefore scanned on if they reported working practices and/or principles. The working practices or principles were sometimes not specifically mentioned, but could be derived from ‘success factors’, ‘implementation factors’ or ‘benefits and challenges’.

A second criteria is the uniqueness of the article. Each article should add something to the total list of articles. This is specifically the case if articles follow up on previous articles, then often the newest, or the most appropriate was included and the others excluded. The reason for including these specific documents is found in appendix B2 for each of the 17 included sources.

Analysis

To come to a list of working practices and principles, the principles and practices that are found in the literature review needed to be sorted (see figure 4-3). A lot of overlap was found between the different streams. The first step was to gather the list of principles. As shown in appendix B4. A list of principles was compiled and brought back to 14 principles. Secondly through careful analysis working practices were found that can be used to implement the principle. These working practices were then assessed and iteratively operationalized with the help of the supervisors to make them applicable for the survey as shown in appendix B4.

The overlap and the origin of the working practices and principles is shown in appendix B3 by a table showing the sources that were used and the working practices/principles occurring in these documents.

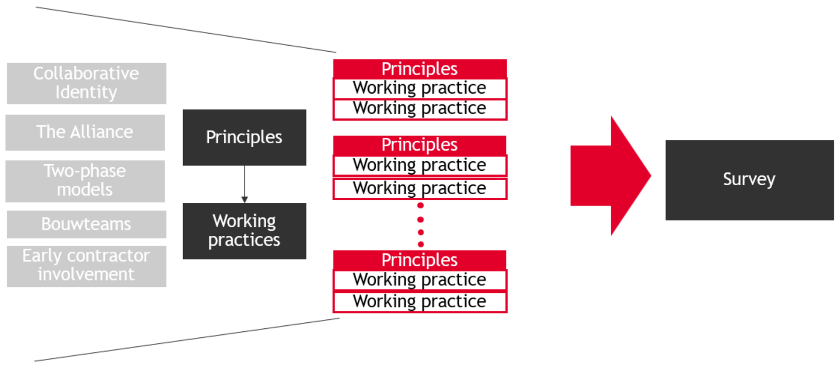

Figure 4-3 Analysis of the literature review

4.2.3 Empirical study

After the grounding in scientific and other literature was performed, the data collected was shared with the environment to add to the relevance of the project. To gather information on the importance of the working practices and principles a survey was conducted with practioners that have the experience of working in two-phase or affiliated relational project delivery models. After gathering this information, a framework was constructed which was then evaluated with a selection of these participants trough a confirmative focus group.

4.2.3a The Survey

To answer the fourth research question, a survey was conducted. A survey is a structured list of questions. The survey is a suitable tool to analyze the importance of a list of suggestions and gather additional principles and working practices. A survey can specifically be used to gather substantial amounts of data points over different projects and can have an exploratory or confirmative nature (Verschuuren & Doorewaard, 1999). In this case the survey should be understood as exploratory. One of the major benefits of a survey is that it could be taken in an online manner, and while the preparation should be thorough, after preparation, it is very cost and time efficient for the researcher. So, by using the survey, a lot of working practices and principles could be explored, and relative, to for instance interviews, more participants could be approached.

One of the major challenges to the use of a survey is the response rate (Wright, 2005). Especially with the use of an online survey. This challenge was dealt with by assigning a specific contact person for each project. This contact person would remind the project members of filling in the survey, which was believed to be more effective than a reminder from the researcher.

To increase the clarity of the survey the survey was thoroughly evaluated with company and university supervisors. The university supervisors offered their experience on the scientific structuring of the survey. The company supervisors offered expertise on how to connect the often, scientific working practices and principles to the language of the construction industry. Furthermore, an additional option was added to survey in which the participants could leave any additional comments at the end of the survey.

Participant selection

The participants of the survey were gathered from multiple projects. As the goal of this study is not to analyzed specific cases, practioners were asked to answer the questions based on their experience from previous projects. Performing this type of study instead of case studies has the benefit that participants are expected to be more open in sharing their opinions as it does not specifically apply to their project. As most of the two-phase models are still in their preparation or at the start of the first phase this helped in still gathering the necessary data. Furthermore, practioners from other related forms such as the alliance that show a lot of similarity with the two-phase model could also be involved.

Participant Requirements

Participants of the survey needed to have experience in working with two-phase models. As the two-phase model is rather new and gathering information from projects that are often still in the beginning of the design or tender phase is less useful, practioners that had experience of collaborating in Bouwteam or alliance models were also considered to enlarge the participant pool. Furthermore, the participants needed to be involved in the project on such a level that they had insight in how the collaboration between the contractor and client was organized. Another possibility was that practioners have been part of assessing, or tendering for a two-phase model project, as these often involve collaboration plans. The participants of the two-phase model can be categorized into three distinct groups: Client participants, Contractor participants. A more detailed mapping out on the type of practioners that have taken part in the survey is given in chapter 8.

Survey sample

To gather participants for the survey a total of six projects was specifically invited trough the network of AT-Osborne. In all these projects one specific person of contact was appointed to further identify which persons in the project organization fit the requirements and can fill out the survey. The projects that were contacted are listed below with a concise description (Table 4-1.)

Project	Collaborative form	Current state
OV-terminal Zuidasdok	Two-phase model	End of the first phase
Crib and bank lowering Pannerdensch canal	Two-phase model	Start of the execution phase
High water protection program City Dikes Zwolle	Two-phase model	Start of the execution phase
Renovation project Oranje Loper	Bouwteam	Start of the execution phase
Renovation project Michiel de Ruyter-tunnel	Bouwteam	End of the execution phase
Project Noordelijke Randmeerdijken	Bouwteam	Start of the execution phase

Table 4-1: projects included in the research

To ensure the validity of the survey these projects were carefully selected. As the overall experience of the practioners was asked for, this was not as important as in for instance a case study, experience with the two-phase model in the Netherlands is still quite rare, and therefore three of the most prominent projects were asked to fill out the survey. Furthermore, practioners from three bouwteam projects were also asked to participate to enlarge the sample size. In total

Survey Set-up

The survey was conducted using an online environment. Respondents were given the change to fill out the survey for a period two weeks. The survey invitation was sent out, with a general explanation of the subject of the thesis which can be found in appendix E1. As described in the research design, in the survey the influence of the principles was focused on an improved collaboration as the terminology of collaborative identity requires some theoretical background. The survey was conducted in Dutch as this is the native language of the participants and fitted best with the Dutch construction industry environment.

An intended time of thirty minutes was aimed at for the response time of the survey. Therefore, questions should be straightforward and contributing to the practical and qualitive character of this thesis. The survey was set-up to gather experiences from the participants and not intended to be of a quantitative nature. Therefore, a number of thirty participants was aimed for differing in related project, employer and experiences. The survey can be found in appendix E2.

Survey design

The survey is developed based on the working practices and principles as identified in chapter 5. The survey contained questions related to:

1. General information
    a. Name, current function, current project
2. Involvement with the two-phase model
    a. Function in the two-phase model project
    b. Years of experience with the two-phase model
    c. Employer(client/contractor)
3. Challenges and benefits of the two-phase model
4. Ranking the collaborative principles
5. Scoring the induvial working practices for each collaborative principle
6. Closing questions
    a. Interest in participating in the focus groups
    b. Additional comment

Challenges and benefits of the two-phase model

In the challenges and benefits section, the participants were asked to name the most important benefits and most important challenges/ disadvantages to collaborating in the two-phase model. To prevent long stories and lists the participants were asked to name three benefits and challenges. The goal of identifying the most important challenges was to solidify the arguments made in the introduction and the literature study regarding the two-phase model.

Ranking the collaborative principles

The collaborative principles identified from the literature study were ranked on importance. To prevent participants of ranking all the principles equally important they were asked to rank the principles from 1-14. This ranking could be done by assigning specific numbers or sliding the principles to the right position.

Scoring the working practices

After identifying the importance of the principles, the respondents were asked to rate the importance of the working practices for each principle. For this rating, a Likert scale from 1=unimportant to 5=very important is used. The respondents were also given the option to score the working practice as “working against” the implementation of the principle. Furthermore, for each of the principles the practioners were given the option to provide additional working practices.

Calculation of the importance of the working practices

To know how to organize the first phase of the two-phase model it is important to know which of the working practices are most important to the collaboration. Following the conceptual model in chapter 2.4.1 the product of the working practices and the principles should be taken. The principles were divided by ten to come to a weighted score ranging from 0.37-0.98. Weighting the score makes it easier to interpret the data.

$$Importance\ working\ practice = Working\ practice * Principle/10$$

For calculation, the average value of the working practices the option "working against" should be excluded from the Likert scale as this does not fit in the range of unimportant to important. The working practices that were seen as working against the implementation of the principle were considered independently. The additional working practices were also reported separately.

4.2.2b The Confirmative Focus Group

After gathering the data from the survey and analyzing the data the most important principles and working practices were summarized into a conceptual model. This model was used to evaluate and deepen the findings in a focus group. The objective of the focus group was to find potential barriers and opportunities for the implementation of the suggested working practices, secondly the focus group was used to discuss the theme of a collaborative identity.

A benefit of working with focus groups instead of individual reviews is the added value in the interaction between participants (Hevner &Chatterjee 2010). As the two-phase model is often considered in different contexts, a focus group can also deliver some nuances to the suggested working practices. two separate focus groups were conducted, from each focus group one of the groups (client and contractor) was invited. Before the official focus groups were executed a pilot focus group was organized to check the questioning route and the presentation.

The steps to be taken in organizing a focus group are explained by (Tremblay et al., 2010):

1. **Objective and research problem**

The objective of the focus groups was: to evaluate the proposed framework for the collaboration in the first phase of the two-phase model.
The research problem was: How is the framework being received by contractor and client? Do they agree with the proposed working practices/principles and are there any implementational challenges or opportunities to consider?

2. **Participant selection and focus group size**

In line with the focus group sample size guideline of 3-12 participants (Brandt et al., (2015) the focus group consisted of 5 and 6 participants. All relevant parties should be involved in the focus group and therefore the client and the contractor were both invited. One focus group was organized for the contractor and one for the client. The separation of the client and contractor was done to improve openness and honesty. Participants were selected carefully to ensure different perspectives. Current functions of the participants were: Project Manager, Contract Manager, Project leader, Realization manager, Quality Manager.

3. **Select an appropriate moderator and a suitable setting**

Ideally the focus group is conducted physically, however it was difficult to organize this due to Covid-19 regulation. Furthermore, it was expected that participants would join the focus group quicker if is organized in an online setting. Therefore, the focus group was organized trough teams. The moderating of the focus group was done by the researcher. The researcher is a neutral party in the process as he was not affiliated directly to any of the employers and had the adequate knowledge to moderate trough the prior research. It is advised to bring a secondary moderator, to free up some work for the moderator. One of the company supervisors was present during the focus group to help accommodate the conversation, if necessary, in which case the moderator could focus on the time-schedule and the questioning.

4. **Develop a predefined yet flexible questioning route**

The questioning route was constructed in collaboration with the supervisors from AT-Osborne and TU-Delft. The questioning route was due to the limited time of 90 minutes kept simple, but additional questions were prepared to inspire the conversation. The full questioning route and time-schedule can be found in appendix D1.

5. **Recruit participants**

The recruiting of participants was done by offering participants of the survey the possibility to speak out their interest on participating in the focus group. A selection of these interested participants was made.

6. **Analysis of the data**

The focus group was recorded on teams. To create a feeling of trust and openness which must be achieved for the focus group to be effective (Brandt et al., 2015) this recording was made confidential to the researcher only. This recording was anonymized and transformed into minutes which combined with the result of the online collaborative tool was analyzed and reported. The analysis was done by reporting the themes from the minutes and online tool as reported in chapter 7.

7. **Report results**

The results were reported in this thesis report which will become publicly available and is also to be shared with the participants after graduating.

General rules for the focus group

-The moderator should be supported in focussing on asking questions only and should not provide answers or inputs that may distort results ((Brandt et al., 2015).

-for the confirmative focus group, it is important that the subject of evaluation is clearly explained trough a presentation (Brandt et al., 2015).

-Questions should be formulated open-ended and unsuggestive of expected outcome (Brandt et al., 2015).

4.2.4 Constructing the framework

After the survey analysis a framework was constructed. The framework was constructed by analysing the most important working practices and grouping these working practices per theme, to create an overview that is easier to quickly digest than a list of 20 working practices. The themes were constructed by grouping similar themes. For instance, all working practices that included something to be organized at the `start` or ´beginning´ were grouped in the theme organize a project start up.

After the focus groups the framework was updated into a final framework. With the input of the focus groups some of the themes were sharpened. Furthermore, some of the working practices are reworded and additional working practices were added.

5 Theoretical results

This chapter aims to identify the collaborative principles and working practices with the use of different literary streams. The most prominent working practices and principles from collaborative identity have been reported in chapter 2. In this chapter first the two-phase model principles and working practices (5.1) followed by the practices and principles found in the alliance (5.3) and the Early contractor involvement theory (5.4) are reported. Within the early contractor involvement, the principles and practices from the bouwteam perspective are also reported. The different streams overlap significantly, so only the most prominent themes are discussed in this chapter for each model. After reporting the individual contributions of the different streams, the principles are brought together (5.4). Finally, the full list of working practices and principles is shown (5.5).

5.1 Principles and working practices from the two-phase model

As most two-phase model projects are still in the first phase, not a lot of research is performed on most prominent principles and practices in the two-phase model, however some evaluations on prior projects have been performed already. Evaluations often report the awarding criteria as an important aspect to how the first phase is set-up.

In the evaluations a lot of attention is put on the pricing mechanism. The Financial system should be based on trust and transparancy (Nagelkerke & Dijke, 2020). Often a system of open book is implemented to support this idea of trust and transparancy. Secondly it is seen in two-phase models that in the tender phase certain aspects such as fixed price elements are implemented (Fijneman, 2020). Furthermore, a healthy profit margin can be found in contracts (Fijneman, 2020) and a detailed cost estimate is sometimes asked from the contractor in the tender phase (Nagelkerke & Dijke, 2020). The tender requirements seem to be a large theme in the two-phase models as they structure how the first phase is organized. Other working practices are the opportunity dossier, risk-dossier, collaboration-method/plan, and a team assesment or personal competences of team members is assessed. (Fijneman, 2020). An explanation and different options of the awarding criteria is found in appendix A1.

A second important theme seems to be the risk management and allocation. The overlaying principle of jointly assessing risks and sharing these or distributing them fairly is often mentioned as important for the two-phase model (Nagelkerke & Dijke, 2020; Clemens, 2021; Fijneman, 2020). These principles are suggested to be implemented by developing a shared risk pot (Clemens, 2021) and the use of a shared risk register (Nagelkerke & Dijke, 2020; Clemens, 2021; Fijneman, 2020).

Thirdly, generally considered to be of importance is the clear and honest agreements on the transition to the second phase (Nagelkerke & Dijke, 2020; Clemens, 2021; Fijneman, 2020). As suggested, this can be reached by making clear agreements on intellectual property and discussing these agreements early in the first phase.

Fourthly, most two-phase models implement some kind of a project start up or kickoff in the first phase. The kickoff has the goal of creating a shared vision and aligning objectives (Clemens, 2020).

5.2 The Alliance

The alliance is the most integrated way of collaboration. The alliance is "a legally enforceable contract between multiple parties who undertake the work cooperatively on a shared risk and reward basis for the purpose of achieving agreed outcomes based on principles of good faith and trust" (Hietajärvi, 2017, p. 29)

5.2.1 Collaborative principles and working practices for the alliance

Hietajärvi and Aaltonen (2018) studied the formation of a collaborative identity in the first Finnish alliance project. They identified key activities that lead to the formation of a collaborative identity in an alliance context. Ranking them on Time Team, Task, and Context. Identifying the most important principles being: (1) articulating a joint vision for collaborative project identity; (2) converging on mutual conceptions of collaborative project alliance philosophy; (3) attaining a shared collaborative mentality; (4) designing ways of working with multiple identities; (5) attaining distinctiveness and (6) legitimizing activities. From the alliance it is shown that shared values, feelings of solidarity and working for the best of the project as a single organization is important (Walker and Lloyd-Walker, 2015, Maguire et al. 2001, Huemer et al., 2015 in Hietajärvi and Aaltonen, 2018). One of the important principles also identified is the selection of the right people for the alliance project team (Laan et al., 2011; Chen et al. 2012; Ross, 2013). Project members should be fit to operate in a more collaborative way based on trust and transparency instead of the behaviors usually demonstrated in the traditional design-build forms of contract (Voordijk & Dewulf, 2011). The project team should be staffed appropriately, and the alliance structure should be made clear at the start of the project to all project members (Voordijk & Dewulf, 2011; Yeung et al.,2007). Furthermore, in the alliance the relationship between contractor and client should be as equals (Voordijk & Dewulf, 2011). It is important that participants understand the structure of the alliance and can be beneficial to organize an alliance workshop (Yeung et al.,2007; Ross, 2013)). These aspects can all be summarized in the principle of team member selection and understanding and implementation of the model. Besides selection the team members on their capacity to collaborate and understand the alliance structure, they should be unequivocally committed to meet or exceed objectives (Ross, 2013).

For an alliance to be effective in achieving risk sharing the alliance fund must be of sufficient size (Voordijk & Dewulf, 2011). In the case of an alliance a risk pot is often considered when dealing with risks as the financial responsibility is for the whole of an alliance. The risk fund helps in aiming for optimizing the alliance rather than striving for the own interests (Voordijk &Dewulf, 2011). Risks should be shared within the alliance on an equal basis (Ross, 2013). For the design phase a suggestion is done to organize specific workshops to identify risks and opportunities (Ross, 2013)

The principle of aiming for project objectives is found in different working practices. The importance of continuous improvement is vital to the alliance (Yeung et al.,2007). Setting common goals and objectives for the alliance as an activity within the alliance is also considered to be important to collaboration for the alliance (Yeung et al.,2007). After the common project goals are clear all decision made by the alliance should be based on the best-for-project principle. (Ross, 2013)

This best for project approach is further translated in the decision-making process. This process should be clearly defined by the organization (Ross, 2013).

Such a decision-making process can only be done if within the organization a high level of trust is created. Trust within the alliance is created by open and honest communication with no hidden agenda's (Ross, 2013). Such an open and honest communication is in the alliance supported by an open book transaction and a joint event administration system (Ross, 2013). If problems arise in the project a joint problem resolution process is also necessary to prevent any unwanted disputes in the organization (Yeung et al.,2007). Trust can only be created if sufficient senior management support is available (Bresnen and Marshall, 2000). But not only support from senior management is necessary.

Commitment towards the alliance is needed from all levels (Rowlinson et al., 2006). This translates to a strong supportive and appropriate leadership position on levels of the organization (Ross, 2013).

To support continuous improvement a peer-relationship system can be enacted (Ross, 2013). Such a systems helps in the personal development of team members. To best optimize this development responsibilities should be clear, and a no blame culture is needed for participants to be open and honest about events (Ross, 2013). A second aspect of continuous improvement is more on the projects side. Encouragement of innovative thinking with a commitment to achieve outstanding outcomes should be incentivized (Ross, 2013). Furthermore, in the alliance a positive influence on the collaboration is argued to be achieved when successes are acknowledged and celebrated (Ross, 2013). Finally, as a support to the collaboration the co-location of the team is seen as a big influence (Yeung et al.,2007; Laan et al., 2011).

5.3 Early contractor involvement (ECI)

Early contractor involvement is an approach that can be used in a traditional or innovated design (New Zealand Government Procurement, 2019). The approach is quite literal: Involving the contractor early (before design) in the process (Wondimu et al., 2016). The Australian model of ECI looks a lot like the proposed two-phase model. The model also uses a 'split' between the design and the execution of the process (Rahmani, Khalfan &Maqsood, n.d.). Therefore, this approach is remarkably interesting to gather principles and working practices for the design of the two-phase model.

5.3.1 Collaborative principles and working principles for Early Contractor involvement

Like the alliance model research has been performed in identifying successful working practices and principles from the ECI literature. The first principle logically is to involve the contractor early in the process (Van Wijck, 2018). The early involvement can be set up in multiple ways. The responsibility of design being the variable factor. The client can be responsible for the resign, with the contractor taking on an advisory role. The contractor can be responsible for the resign in which the client is liable for delivering enough information. Finally, the design can be done collaboratively with a shared responsibility. For each of the variance's effective communication between the client and the market is important (Van Wijck, 2018). Open and honest communication in the design phase is argued to be complemented by open book accounting and sharing sensitive information (Rahman &Alhassan, 2012). Public value is achieved by using this open book accounting, having the ability to have the contractors' rates and margins independently verified (New Zealand Government procurement, 2019).

A second important principle to ECI is the selection of the contractor and the qualification of both parties. This selection process is needed to assure that the method will address the issues of the project adequately (Rahmani et al, n.d.). The contractor and client should both be qualified for the project scope, but also for the collaboration method (Wondimu et al., 2016). Competitive tension is also maintained by setting clear conditions for the selection phase (New Zealand Government procurement, 2019).

To ensure commitment and that there are no intellectual property issues it is important to ensure a proper exit clause is in place. The exit clause should include proper compensation for the contractor (Wondimu et al., 2016). This should compensate the contractor in case of an exit for the work done on the design and planning as well as the innovations as worked out by the contractor. Proper senior leadership support from both organizations should also be ensured to develop a no-blame culture for the project team (New Zealand Government procurement, 2019). The project team should have enough mandate to make critical design changes. The commitment is argued to lead to effective collaboration and transparancy.

A good risk management procedure should also be included in the design phase. Risk transferred to contractors should be manageable and proportional (Wondimu et al., 2016). Within the design phase a risk assessment should be conducted collaboratively (Rahmani et al., n.d.)

Finally, the importance of a collaborative culture is considered of importance. The collaboration between contractor and client is mainly depended on the chemistry between the project teams. Forming a single project team ensures a no-blame culture (Nader, 2019). For ECI to succeed attention is needed on the 'soft' aspects of collaboration, for example by conducting several workshops (Nader, 2019).

5.3.2 Bouwteam

A specific interpretation of ECI is the Bouwteam model (Duurzaamgebouwd, 2020). The model that is specific to the Dutch infrastructure industry is seen as part of two-phase models (Fijneman, 2020) and is therefore relevant in designing the principles for the overall design. The Bouwteam model has a two-phased contract in which the first phase is a design phase in which at least the contractor and client are part of one team (Van der Pas, 2020). The client and contractor collaboratively work on the design, risk, and cost management. The second phase is an execution phase which can be set up by using a traditional or integrated contract (Van der pas, 2020). The client takes the lead in the design phase (Van der pas, 2020). This can be seen as different to the design phase of the two-phase model, where often the responsibility lies with the contractor or is shared (Nagelkerke & Dijke, 2020).

Collaborative Principles and working practices from the Bouwteam model

The Bouwteam model has been researched extensively in theses. Van Riggelen (2019) researched success factors for the Bouwteam model and van der pas (2020) researched the pricing mechanism in the Bouwteam model. Furthermore, De Hoog (2010) developed a list of success factors to collaboration in the Bouwteam. These success factors can be used and re-written to principles and practices that might be of importance. As the Bouwteam model is part of the ECI school of thought a lot of the principles and practices are similar. However, the specific context of the Netherlands and the maturity of the model makes it useful to consider some additional practices and principles.

A first important principle that is found within the Bouwteam literature is the importance of joint vision and goals (Dhonr, 2021). This can be done by implementing an intensive project start up (PSU) at the beginning of the project (Van Riggelen, 2019; Dhonr, 2021). Furthermore, the need for an open and transparent financial system is supported by suggesting cost estimates parallel to the development of the design (van Riggelen, 2019) and an agreement on open book accounting (van der Pas, 2020). For the tender phase openness and honesty in the tender document is suggested (van Riggelen, 2019). Furthermore, the tender should be focused on the collaborative qualities (Van Riggelen, 2019; Van Limbergen, 2019). The importance of working together on one location is also mentioned by van Riggelen (2019), and a joint effort on planning, problem solving, and decision making is mentioned to be important for the collaboration (Van Riggelen, 2019; Dhonr, 2021).

5.4 List of principles

From these seventeen resources a list of principles is compiled through careful analysis. Some of the principles that have large similarities and are therefore put together. The full list of principles with all references is shown in table 5-1. It should be noted that the principles are not always literarily mentioned, for instance the common objectives were sometimes referred to as goals. Furthermore, not all studies on alliancing, ECI and bouwteam could be included in the literature study as the timeframe of the master thesis does not allow this. However, the goal of the literature study is to gather principles and working practices that are than proposed to the practioners, as the practioners have the option to add any missing practices and values this literature study should suffice. The total overview of the working practices and their origin can be found in appendix B2.

	CI		2-phase			Alliance				ECI				Bouwteam				
Principles	(Ligthart, 2021)	(Hietajärvi & Aaltonen, 2018)	(Nagelkerke & Dijke,2020)	(Fijneman, 2020)	Clemens (2021)	(Yeung, et al., 2007)	(Ross, 2013)	(Voordijk & Dewulf, 2011)	(Chen, et al., 2012)	(NZGP, 2019)	Rahmani et al., (n.d.)	(Wondimu, 2016	(Rahman & Alhassan, 2012)	(Lagemaat, 2015)	Van der pas, 2020	(Dhonr, 2021)	(Van Riggelen, 2019)	#
There is a common vision and objectives.	X	X				X					X					x		5
Involve all stakeholders of the project in setting vision and goals.	X	X									X							3
Risks are assessed jointly and shared/distributed fairly.	X				X	X			X		X				X			6
There is open and transparent communication.	X						X		X	X	X		X					6
Project decisions and problems are tackled together.	X								X		X							3
Conflicts are dealt with constructively.	X					X	X		X									4
There is a no blame culture.	X			X			X		X	X	X							6
There is a shared feeling of us.	X	X		X	X						X							5
The contractor is selected on the basis of his collaboration competences.					X	X	X		X					X		X	X	7
The financial relationship is based on trust and transparency.	X												X		X		X	4
There is involvement in the project from both sides.	X		X	X			X											4
There are clear and honest agreements about the transition to the second phase.			X	X	X					X			X		X	X		7
There is a focus on implementing improvement in the project	X	X				X												3
Attention is paid to achieving the planning goals	X										X							2

Table 5-1: Principles found from the different sources.

5.5 Operationalization of the principles and working practices

After considering the different principles from collaborative identity theory, the two-phase model, and the different relational contracts, the principles are operationalized so they can be used for further analyses. This results in a list of principles (7.1). Secondly, the working practices (7.3) found in the literature were divided into the principles, this is done by using the literature background of the working practice and using common knowledge.

5.5.1 Collaborative principles

As a first part of the literature synthesis the collaborative principles from the literature review are reported (Table 5-2). These principles can be seen as important goals to strive towards to have an improved collaboration in the first phase. The principles are sometimes a combination of principles found in the literature review as they follow the same reasoning (see appendix B4).

Collaborative principles
A. There is a common vision and objectives
B. Stakeholders are involved early in the process
C. Risks are assessed jointly and shared/shared fairly
D. There is open and transparent communication
E. Project decisions are made collectively, and problems are solved jointly.
F. Conflicts are handled constructively.
G. There is a no blame culture
H. There is a shared feeling of us
I. The contractor is selected on the basis of his collaboration competences.
J. The financial relationship is based on trust and transparency
K. There is involvement in the project from both sides.
L. There are clear and honest agreements about the transition to the second phase in the project.
M. There is a focus on implementing improvement in the project
N. Attention is paid to achieving the planning goals

Table 5-2: Collaborative principles

5.5.2 Categorization of the Working practices

From the principles the working practices found in the literature review can be added. They are often already mentioned in combination with the principles in the literature review and are therefore placed with their respective principle. Some of the working practices are placed with the principle by analyses from the researcher. It should als be noted that a rewording of the practices is sometimes deemed necessary to fit the two-phase model or the Dutch infrastructure industry. Finally, some of the working practices needed some further operationalization to be identified clearly by the practioners. The full list is shown in table 5-3, a specification of the changes made to the working practices can be found in appendix B5.

There is a common vision and objectives.
Create a shared vision at the beginning of the project through a workshop/vision day.
Align objectives at the beginning of the project through a workshop/vision day.
Speak out about the interests of the parent organization in order to jointly arrive at a clear and comparable project vision.
Organize structural joint sessions to recalibrate and renew the vision and goals.
Involve an independent facilitator to create a shared vision and objectives.
Involve all stakeholders of the project in setting vision and goals.
Stakeholders are involved early in the process.
Planning, scope, and performance targets are discussed through a dialogue with the contractor during the tendering phase.
Perform a comprehensive project startup (PSU) at the beginning of the first phase of the collaboration.
When transitioning to the next phases, organize a project follow up (PFU).
Record a collaboration agreement jointly in a formal document.
Explain the philosophy of the two-phase model to the project team members at the beginning of the project and to new project team members.
Risks are assessed jointly and shared/distributed fairly.
Identify risks early during dialogue phase and tendering.
Organize joint risk assessment workshops in the first phase of the collaboration.
Allocate risks to the party that can best control and mitigate them by recording them in a risk register.
Share risks and rewards collectively by implementing a shared risk pot.
Periodically share and update a risk register that is shared with all parties within the project team.
There is open and transparent communication.
Organize an informal meeting without an agenda where sensitive information can be shared.
Work with a joint planning for client and contractor.
Organize an efficient meeting structure with fixed meetings, agendas, and reports.
Create an (online) environment in which all relevant information is available to all team members

Project decisions and problems are tackled together.
Regularly organize joint meetings where decisions are made.
Reward and name good behavior in the team with regard to solving problems together.
Make agreements about solving problems together and discuss them in the team.
Conflicts are dealt with constructively.
For a timely settlement, give the handling of conflicts explicit space on the agenda of joint consultations.
Engage an external facilitator to facilitate the dispute resolution process.
Create a clear dispute resolution process.
Make agreements about the way in which (potential) conflict situations are handled and discuss these with the team.
There is a no blame culture.
Make shortcomings negotiable in the project start-up (PSU) by explicitly reserving time for this.
Periodically organize an anonymous evaluation of the collaboration in the team and discuss the results with each other.
Set up the project team in such a way that there is equality in duties and roles between team members of both parties.
Reflect with the team regularly and identify and encourage situations that contribute to building trust.
Engage an external coach to facilitate the collaboration.
There is a shared feeling of us.
Organize informal team building activities such as get-togethers, excursions or celebrating milestones.
Organize more formal team building activities such as coaching sessions and feedback sessions.
Create a joint 'brand', for example through a project website, a logo or joint stationery.
Create one integrated team, without double roles in contractor and client.
Make sure routines, such as working hours and meeting structures, are the same.
Arrange a shared location where the project team can work together.
The contractor is selected on the basis of his collaboration competences.
Perform a collaboration assessment in the procurement phase.
Let the contractor draw up a collaboration plan as part of the tender phase.
Transfer the tender staff to the design phase.
Select individual team members based on collaboration competency.
The financial relationship is based on trust and transparency.
Make use of open book accounting.
Create a healthy profit margin by recording it in the contract.
Include fixed price elements in the award criteria for elements such as hourly pay and machine usage.
Develop the price periodically and correct for changes in risk or scope.
Have the contractor make a detailed cost estimate during the tendering phase.
Make a joint cost estimate parallel to the development of the design in the first phase.
There is involvement in the project from both sides.
Set up a joint project management team.
Periodically organize a steering committee with the management of both parent organizations, so that they remain involved in the project.
Create a strong mandate for the project team to have in making decisions.
Let the future owner and administrator be part of the project team.
There are clear and honest agreements about the transition to the second phase in the project.
Make clear agreements about intellectual property in the design.
At the start of the first phase, agree on clear Go/no go conditions for the transition to the second phase.
Ensure proper compensation from the contractor in the event of an exit and include these agreements in the contract documents as well.
Organize a training or webinar on the two-phase model at the start of the project.
There is a focus on implementing improvement in the project
Engage external expertise in inexperienced areas in the design phase.
Periodically evaluate the collaboration within the project with the whole team in an open consultation.
Organize knowledge sessions in which team members share knowledge among themselves.
Add financial incentives in the contract for achieving project objectives.
Attention is paid to achieving the planning goals
In the tender, ask for a clear planning for the first phase.
Monitor and recalibrate the planning periodically throughout the project.
Reward the achievement of the planning with financial incentives.
Make a joint planning for the first and second phases.

Table 5-3 Full list of Working practices and principles

6 Empirical Results

This chapter discusses the results from the separate parts of the survey. The first sector reports the general information of the participants (6.1). In the second sector the most important challenges and opportunities to the two-phase model are reported (6.2). Thirdly most important collaborative principles (6.3) are reported. Then the importance of the working practices to implement the affiliated principles is reported (6.4) and finally the conceptual framework is constructed (6.5).

6.1 General information

To identify the relevance of the gathered information some general information about the participants and their relationship to the two-phase model was gathered. In total forty participants started the survey, of which thirty-two participants filled in the entire survey. Fifty-one participants were invited to fill out the survey. The participants have different experiences with the two-phase model or affiliated relational contracts. Figure 6-1 shows the experience of the participants with two-phase models. From the participants a total of eighteen participants have been part of a bouwteam project, also nineteen participants indicated to have been part of a two-phase model project. Ten of the participants were involved with designing the two-phase model structure and a total of fifteen participants were also part of the procurement procedure. A total of ten participants indicated that they have been part of an alliance project. Finally, two participants mentioned other affiliations. One participant had been specifically part of multiple tenders for the alliance, and one of the participants had been part in evaluating one of the two-phase models.

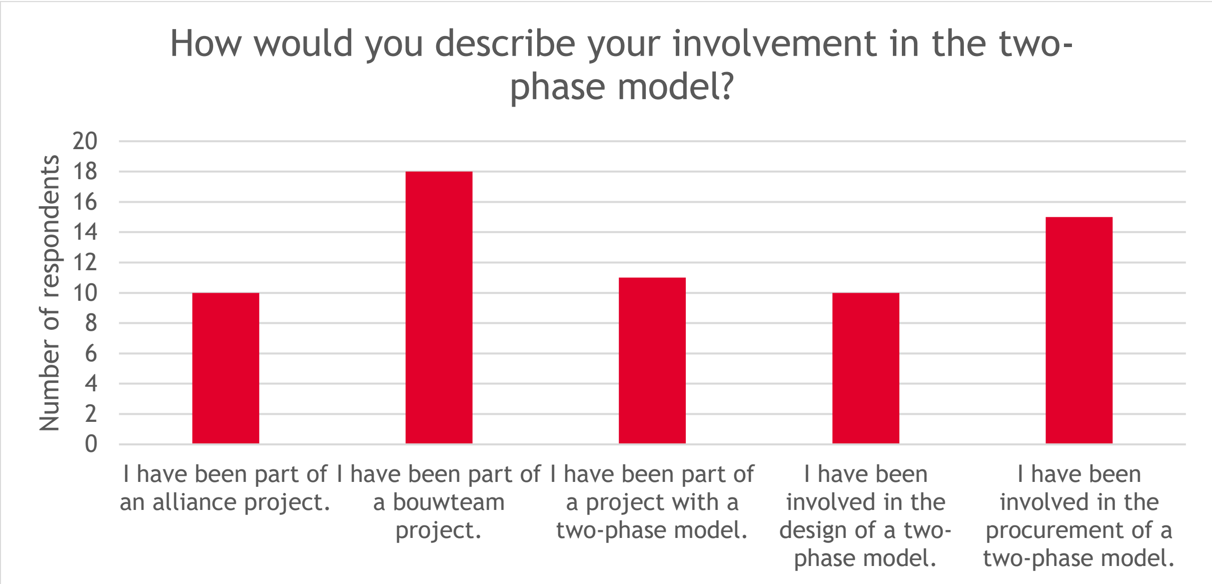

Figure 6-1: Involvement with the two-phase model

6.1.1 Mix between contractor and client

Furthermore, as mentioned in the research design a mix of contractor and client participants is needed to ensure that the suggestions in the framework are not only seen as important by one of the parties as collaboration always involves two parties. The two-parties: contractor and client, are considered to be quite different in culture, working methods and interests. This strengthens the need for a good division of contractor and client respondents. Forty-seven percent of the practioners are currently employed by the client, 44% is employed by the contractor. Nine percent of the practioners is in a role where they work for both the client and employer in either an advisory role, or engineering company.

6.1.2 Years of experience

The respondents were also asked to report their years of experience. Nineteen percent of the practioners have about one year of experience with the two-phase model. As shown in figure 6-2 22% have 2 years of experience with the two-phase model. Forty-seven percent of the practioners have 3-5 years of experience with the two-phase model and 13 % have more than 5 years of experience.

The respondents were invited from multiple projects as introduced in the research design. While participants were not specifically asked to report on their specific project, the experience they bring from the projects is important. Therefore, a good distribution on different projects was strived for. Figure 6-2 shows the distribution across the different projects that participants are currently part of.

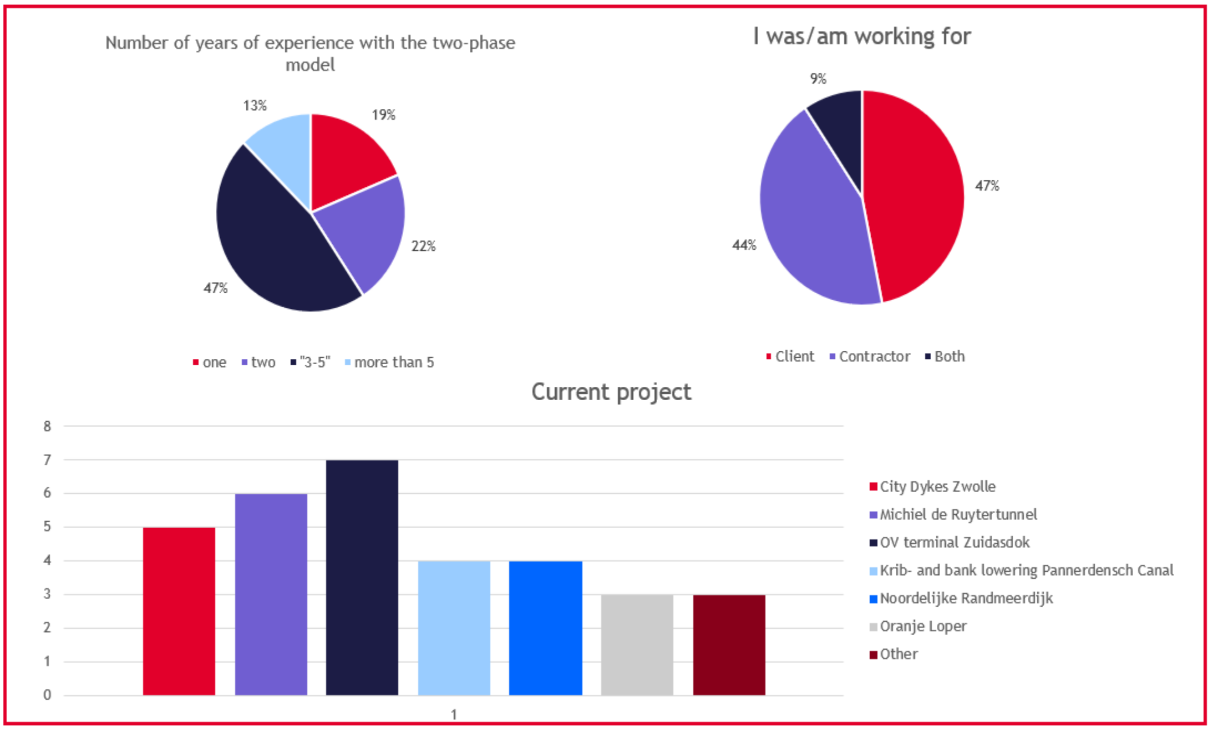

Figure 6-2: General information of the participants

6.2 Main challenges and opportunities for the two-phase model

In the survey participants were asked to indicate in which are the most important benefits and challenges to the two-phase model. By identifying the most important benefits and challenges a better understanding can be created on what should be dealt with and taken advantage of in the organization of the two-phase model. An inductive analysis is performed finding the most important themes. This is done by grouping similar statements together first. The statements are then analyzed and divided into themes that overlap the statements see table 6-1. The challenges are reported first and then the benefits are reported. For an overview of the related statements and division of themes (See appendix C1 and C2). The total number of mentions for each theme are shown in table 6-1 and 6-2. The number of mentions is indicated in the text.

6.2.1 Challenges

Themes	# Mentions
Collaboration	56
Planning and risk allocation	16
Price forming	8
Newness of the two-phase model	7

Table 6-1: overview of the main themes mentioned as challenges

The challenge that was mentioned most is the collaboration in the first phase. ‘Letting go of old/traditional’ behavior was mentioned the most (11), especially when issues or conflicts in the projects arise. This behavior relates to the traditional relationship of the client and contractor in which they both aim for their own benefit instead of a best for project mindset. Furthermore, building trust between contractor and client was seen as a big challenge (9). As both organizations often struggle to share information transparently and certainty for the realization is not yet arranged for the contractor. Thirdly the cultural differences of the client’s organization and the contractor’s organization were mentioned as a challenge for the two-phase model (9). Different cultural organizations can be challenging when a design or further exploration is done collaboratively. Furthermore, this challenge is supplemented by the challenge of different interests and goals of the two organizations in the first phase (7) as these different interests can enlarge the gap between client and contractor. Finally, while openness and transparancy is by some respondents (5) seen as a possible risk as information can be mis-used by either one of the parties.

A second theme is found in the shared planning and risk allocation in the first phase. Dividing the risks is seen as difficult by some of the participants (4). And also, the planning of the first phase seems to be a challenging topic (6) as finishing on time and within the planning is a challenge.

Thirdly, the price-forming mechanism is seen as a challenge by the practioners (6). Finding a fair price and creating a shared price in harmony can be difficult, as limited competition is present in the first phase.

The newness of the two-phase model is also seen as a challenge, this new way of collaboration comes with some uncertainty on how to organize such a collaboration (7). Furthermore, the collaboration in the two-phase model is organized differently by different client organizations, which can make it difficult to understand this-new way of collaboration. This new way of collaboration also does not automatically translate to the sub-contractors as they often are not part of the two-phase agreement.

6.2.2 Benefits

Themes	Benefit
Expertise and experience in the design phase	**28**
Collaboration	**27**
Transition to the second phase	**24**
Decision making	**10**
Price forming	**7**

Table 6-2: overview of the main themes mentioned as benefits

The most important benefit to the two-phase model is, according to the participants, the increased expertise and experience in the first phase (28). An optimal solution to the project can be found due to the collaboration in the first phase (8). Furthermore, as the final price is made after the first phase the design in the first phase can be made without full competition instead of scope arrangements already being set in the tender stage of the project (4) this positively influences the design as the contractor can be more open about costs and optimal solutions. The joint expertise of the contractor and client in the first phase also leads to a better product (12). The expertise and experience finally lead to a better risk management and a better risk distribution according to some respondents (11) as this can be discussed in the first phase and the contract for the second phase is signed after the risks are known.

As mentioned before collaboration in the first phase of the two model is argued to be of importance. The results of the survey also indicate that collaboration between the contractor and client is a great benefit to the two-phase model as it was mentioned by most of the participants (27). Practioners mentioned that in the first phase a feeling of working together can be created and increased trust due to the transparancy in the projects is created. Working towards a common goal can improve the collaboration.

A third general theme is the transition to the execution phase. Due to a better preparation in the first phase (10) it is expected that in the second phase there will be less additional claims and work, the so called VTW's (7). Furthermore, the joint preparation will lead to less discussion in the second phase about the contract. The joint design or understanding of the project is expected to lead to less surprises in the second phase as well as the combined expertise of the client and contractor is used to plan, design and price the work to be performed.

Decision making is by some of the participants (10) being mentioned as a benefit due to a better understanding of the underlying reasons. Decisions can also be made quicker due to the openness of the project environment.

A third aspect is the financial situation of the project. A benefit as proposed by some of the participants is the aim to come to a price which is honest for both parties and is paid for honest work (5). The honest work for fair money (Eerlijk geld voor eerlijk werk) train of thought is found back in another project vision called 'project DOEN' and can probably be related back to this. Project DOEN and the introduction of the two-phase model overlap quite a bit, so this is not surprising to see some of the DOEN-language in the two-phase model benefits as well.

6.2.3 Conclusion benefits and challenges

As can be seen in the previous sections, some of the aspects that were indicated to be a benefit for some of the participants, was seen as a challenge for other participants. For instance, the largest challenge of collaboration in the first phase model, was also mentioned as a benefit by a lot of the participants. This shows that if the collaboration is organized in a good way it can be a great benefit to the two-phase model, but challenges may arise in building trust, letting go of old behavior and combining the diverse organizations. Therefore, sufficient effort should be put in the collaboration.

Furthermore, whilst the participants indicate that the increased expertise and experience in the first phase lead to a better design, product and planning, it can also be difficult to finish this design phase on time and within budget. Dividing the risks between the parties is also seen as a challenging activity.

The transition to, in line with the better preparation in the first phase, the second phase is seen as a benefit. Also, the benefits in the second phase due to a joint design and planning in the first phase are indicated by the participants.

Two final challenges are the decision making, which can take longer due to joint decision making and the price forming mechanism. Some of the participants indicated that is not clear how the price forming procedure should be organized, however if organized properly the honest work for fair money principle seems to be a benefit.

6.3 Collaborative Principles

Figure 6-1 shows the average ranking of the principles (14=Most important; 1=least important). As can be seen better in the box-plot diagram (figure 6-3) the differences between the principles are rather small, and the standard deviations often relatively large. This means that there are different perspectives from the different participants on the importance of the principles. A larger overview of the distribution of the principles is found in appendix C3.

Rank	Collaborative Principles	AVG	S
1	**There is open and transparent communication.**	9.8	3,9
2	**There is a common vision and objectives.**	9.5	3,7
3	**Project decisions and problems are tackled together.**	9.2	3,6
4	**There is a shared feeling of 'us'.**	8.8	3,3
5	**The financial relationship is based on trust and transparency.**	8.4	4,4
6	**Risks are assessed jointly and shared/distributed fairly.**	8.3	3,1
7	**There is involvement in the project from both sides.**	8.3	3,7
8	**There are clear and honest agreements about the transition to the second phase in the project.**	7.9	4,3
9	**Close stakeholders are involved early in the process.**	7.2	4,0
10	**Conflicts are dealt with constructively.**	7.0	3,4
11	**The contractor is selected on the basis of his collaborative competences.**	6.4	4,3
12	**Attention is paid to achieving the planning goals.**	5.7	3,4
13	**There is a no blame culture.**	4.8	3,5
14	**There is a focus on implementing improvement in the project.**	3.7	2,8

Table 6-2: ranking of the Collaborative Principles

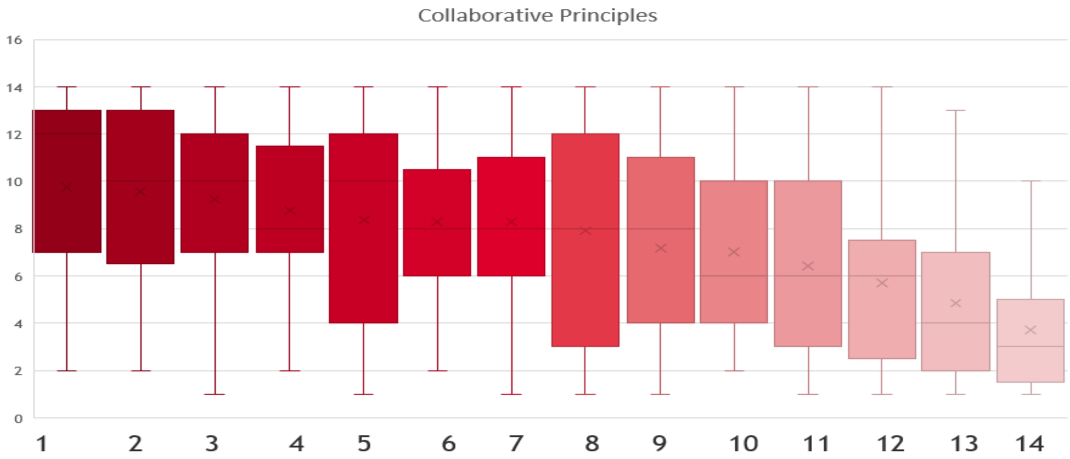

Figure 6-3: distribution of the Collaborative principles

6.3.1 Differences in importance between Client and contractor

As the survey was conducted with practioners from both contractor and client, a difference in principles can be expected as the organizations are quite different from each other, and perspective traditionally are different. However, by analyzing the data as seen in appendix C4, none of the differences is found significant by a statistical analysis. Finding significant differences in smaller populations (n=14 and n=15, for the separate groups) can be considered difficult. The largest differences are therefore still discussed here. A second reason for none of the differences being significantly different is the large spread in ranking.

The main differences can be found in the involving "close stakeholders" early in the process. The contractor found this principle to be of more importance on average than the client (-2.34). Secondly the principle that suggested to deal constructively with conflicts was scored higher by the Client (2.11 points). The differences in ranking by average scores is shown in appendix A4. Differences that are bigger than two in rank are shown in table 6-3. The values represented in the table show the difference between client and contractor (=Mean Client- Mean Contractor). The table also shows the difference being rather small compared to a range of 1-14.

Principle	Difference
Conflicts are dealt with constructively.	2,11
There is a focus on implementing improvement in the project	1,49
There is open and transparent communication.	1,32
There are clear and honest agreements about the transition to the second phase in the project.	1,11
There is a no blame culture.	0,61
The financial relationship is based on trust and transparency.	0,52
There is a shared feeling of us.	0,35
Risks are assessed jointly and shared/distributed fairly.	-0,07
There is involvement in the project from both sides.	-0,35
Attention is paid to achieving the planning goals	-1,09
The contractor is selected on the basis of his collaboration competences.	-1,17
There is a common vision and objectives.	-1,22
Project decisions and problems are tackled together.	-1,29
Involve the close stakeholders of the project in setting vision and goals.	-2,34

Table 6-3: Differences in principle ranking between client and contractor

The values in table 6-3 show the average value derived from the ranking from each participant. However, if these values are ranked in order as done in the beginning of this chapter it is important to check if the most important principles do not differ between the client and contractor.

Looking at the differences in appendix C5 it becomes clear that at least the four most prominent principles are the same, although different in sequence. The table in the appendix shows that if only the clients practioners had filled in the survey, the dealing with conflicts would be ranked 6th as for the contractor it would be ranked 12th. The involvement of stakeholders in early in the process would have been ranked 6th for the contractor and only 9th for the client. Finally, the financial relationship based on trust and transparancy would be ranked 5th by the client and 8th by the contractor. This does, while the differences were not significant in average value show the importance of including contractor and client in the process of designing the framework.

6.4 Working practices

To know how to organize the first phase of the two-phase model it is important to know which of the working practices are most important to the collaboration. Following the formula as described in the research design the most important working practices are reported here.

6.4.1 Most important working practices

As the importance of the working practices is calculated trough interaction with their respective principle, this should still be considered in analyzing the data. The full list of working practices and their importance can be found in appendix C6. The working practices with a combined score higher than 3.5 are seen as most important.

By analyzing the most important working practices it becomes clear that the working practices that score highest are affiliated with the most important principles as ranked before. The effect of ordering the working practices on principles is seen here, but it also shows that the participants were confident in finding these working practices as important to implementing the principle. As the principle is scored on its importance to collaboration and the working practice on its importance to implementing the principle it can be argued that these working practices are most important to improve the collaboration in the first phase of the two-phase model according to the participants of the survey. The most important working practices are reported in table 6-4. The color indication used for the principles is similar to the colors used in the framework presented in figure 6-4. In total 20 working practices scored higher than 3.5 and are therefore considered to be most important.

Working method	Value	Principle
Work with a **joint planning** for client and contractor.	4,70	There is open and transparent communication.
Organize an **informal meeting** without an agenda where sensitive information can be shared.	4,41	There is open and transparent communication.
Speak out about **the interests of the parent organization** in order to jointly arrive at a clear and comparable project vision.	4,40	There is a common vision and objectives.
Create a **shared vision** at the beginning of the project through a workshop/vision day.	4,28	There is a common vision and objectives.
Align **objectives** at the beginning of the project through a workshop/vision day.	4,24	There is a common vision and objectives.
Arrange a **shared location** where the project team can work together.	4,22	There is a shared feeling of 'us'
Create an **(online) environment** in which all relevant information is available to all team members	4,08	There is open and transparent communication.
Organize an **efficient meeting structure** with fixed meetings, agendas and reports.	4,05	There is open and transparent communication.
Organize structural joint sessions **to recalibrate and renew** the vision and goals.	4,05	There is a common vision and objectives.
Regularly organize **joint meetings** where decisions are made.	4,03	Project decisions and problems are tackled together.
Make **agreements** about **solving problems** together and discuss them in the team.	4,03	Project decisions and problems are tackled together.
Organize informal team building activities such as get-togethers, excursions or celebrating milestones.	3,93	There is a shared feeling of 'us'
Reward and name good behavior in the team with regard to joint problem solving.	3,81	Project decisions and problems are tackled together.
Allocate risks to the party that **can best control** and mitigate them by recording them in a risk register.	3,77	Risks are assessed jointly and shared/distributed fairly.
Periodically organize **a steering committee** with the management of both parent organizations, so that they remain involved in the project.	3,76	There is involvement in the project from both sides.
Create a **healthy profit margin** by recording it in the contract.	3,74	The financial relationship is based on trust and transparency.
Make use of **open book accounting.**	3,73	The financial relationship is based on trust and transparency.
At the start of the first phase, agree on **clear Go/no go** conditions for the transition to the second phase.	3,71	There are clear and honest agreements about the transition to the second phase in the project.
Develop **the price periodically** and correct for changes in risk or scope.	3,70	The financial relationship is based on trust and transparency.
Create a **strong mandate for the project team** to have in making decisions.	3,61	There is involvement in the project from both sides.
Periodically share and **update a risk register** that is shared with all parties within the project team.	3,53	Risks are assessed jointly and shared/distributed fairly.

Table 6-4: Most important working practices

6.4.2 Least important working practices

While the focus of the research is identifying the important principles and working practices, gaining understanding on which practices are considered to be of least importance will help in answering the main research question on how the first phase should be organized. The least important working practices are reported in table 6-5.

Least important Working practices	Value	
Engage an **external coach** to facilitate the collaboration.	**1,84**	There is a no blame culture.
Set up the project team in such a way that there is **equality in roles and responsibilities** between team members of both parties.	**1,79**	There is a no blame culture.
Make **shortcomings negotiable** in the project start-up (PSU) by explicitly reserving time for this.	**1,76**	There is a no blame culture.
Reward the achievement of the planning with **financial incentives**.	**1,73**	Attention is paid to achieving the planning goals.
Periodically organize an **anonymous evaluation** of the collaboration in the team and discuss the results with each other.	**1,69**	There is a no blame culture.
Periodically **evaluate the collaboration** within the project with the whole team in an open consultation.	**1,55**	Attention is paid to achieving the planning goals.
Engage **external expertise** in inexperienced areas in the design phase.	**1,54**	Attention is paid to achieving the planning goals.
Organize **knowledge sessions** in which team members share knowledge among themselves.	**1,31**	Attention is paid to achieving the planning goals.
Add **financial incentives** in the contract for achieving project objectives.	**1,13**	Attention is paid to achieving the planning goals.

Table 6-5: Least important working practices

The working practices in table 6-5 are mainly part of the least important principles as well. This makes sense as the same formula to calculate the most important working practices is used. These least important working practices should therefore be understood considering the affiliated principle.

Involving external coaches and or expertise is seen is indicated to be unimportant by the participants. Furthermore, the implementation of financial incentives to either achieve objectives or the planning of the project is seen as unimportant. Thirdly evaluating the collaboration of the project team belonging to the principle of a no blame culture seems to be relatively unimportant.

Furthermore, equality in roles and responsibilities is seen as unimportant. Is seems that according to the participants the roles and responsibilities can be different, as long as these are understood, and it is clear how decisions are made (See most important wp's).

Finally discussing shortcomings in the PSU has a low score. However, sharing the vision and goals at the start of the project is seen as important in the previous section. The negotiability of these shortcomings might be the reason why the working practice is seen as unimportant.

6.4.3 Difference in working practice importance between Client and contractor

The most important working practices are to be used in organizing the first phase of the two-phase model. However, differences between contractor and client should also be considered. As mentioned before the client's and contractor's organizations differ, it can therefore be expected that a different rating of working practices can be found. To find the differences an analysis in ranking and statistical analysis on the different values was performed. The results from the statistical analysis can be found in appendix C8.

As can be seen there is a significant difference on three of the working practices between the contractor and client. Making agreements about solving problems together and discussing them in the team is significantly more important to the contractor and allocating risks to the right party as well. Finally making a joint cost estimate parallel to the development of the design in the first phase is significant as well.

Furthermore, three working practices were almost significant, and due to the relatively small population worth mentioning. The working practice of rewarding the achievement of the planning with financial incentives is indicated to be of more importance by client respondents. Also, the joint risk management workshop seems to be of more importance to the contractor then to the client and creating a strong mandate for the project team as well. It should be noted that most of these working practices are not in the most important list, and therefore do not influence the framework. However, the working practice on creating a strong mandate for the project team is in the framework. It should therefore be investigated why there is a difference in importance for the client and the contractor. This is also true for the allocation and mitigation of risk, working practice.

Working practice	Sig.	Difference
Reward the achievement of the planning with financial incentives.	**0,072**	**0,71429**
Make agreements about solving problems together and discuss them in the team.	0,053	-0,43810
Organize joint risk assessment workshops in the first phase of the collaboration.	0,092	-0,45128
Create a strong mandate for the project team to have in making decisions.	0,076	-0,50952
Allocate risks to the party that can best control and mitigate them by recording them in a risk register.	0,009	-0,59048
Make a joint cost estimate parallel to the development of the design in the 1st phase.	0,037	-0,70000

Table 6-6: Differences in working practices between client and contractor

6.4.4 "Working against"

Not a lot of working practices were identified as "working against "the implementation of the principle and thus the collaboration in the two-phase model. The option was used in total 37 times across all the participants. Mostly only once or twice (see appendix C10). For two of the working practices the option is used more. "Include fixed price elements in the awarding criteria for elements such as hourly pay and machine usage" was found to be working against the principle: "financial relationship is based on transparancy and trust" by 4 participants and in the same principle the working practice: 'have the contractor make a detailed cost estimate during the tendering phase' was found to be working against the principle by 7 participants.

These last two working practices are discussed in the focus groups as well.

6.4.5 Additional working practices

The participants were given the option to add additional working practices. An overview of all additional proposed working practices is found in appendix C7. Some of the working practices that are suggested are actually used to implement other principles. This is important to consider whilst interpreting the findings.

First of all, the participants suggested some working practices that cannot easily be coupled to another working practice see table 6-7. One of the advised working practices is to make the control of risks part of the contract. On the principle of open and transparent communication it is suggested to decouple contractual discussions from substantive discussions. This could be achieved by differentiating between informal meetings and official meetings, but a third distinction could be added here. A third working practice that was brought forward is the setting of rules of conduct. Which are rules that guide the behavior in the project. The rules of conduct could definitely help in building open and transparent communication, but also contribute to values such as trust and honesty. To train, define and select desired leadership was suggested to be of importance for the no-blame culture. The leadership factor is not really discussed in any of the other working practices but might be a considerable influence in how the project is organized. From the benefits and challenges it could already be concluded that it is important to have the right competences in the team. Finally, it is suggested to set a clear milestone for the first phase. From the challenges as discussed in appendix C2 a concern is that first phase might take too long as designers will always be designing, this working practice could prevent this from happening.

Furthermore, some of the additional working practices were not actually new working practices but an expansion or explanation of a different working practice. For instance, the alignment of personal goals and vision for the project, can be incorporated in creating a shared vision and goals. As a choice is made in presenting not too many working practices to the participants of the survey some of these elaborations are not found directly in the survey but should be considered while explaining the working practices in the final product.

Additional Working practice	Affiliated principle
Make the control of the main risks part of the contract	**Risks are assessed jointly and shared/distributed fairly.**
Decouple contractual discussions from substantive discussions	**There is open and transparent communication.**
set rules of conduct e.**g.,** "talk to each other, not about each other" "do not attack each other"	**There is open and transparent communication.**
Define, **train** and select on the desired leadership	**There is a no blame culture.**
Set a clear end milestone for the first phase (in time and product)	**Attention is paid to achieving the planning goals**

Table 6-7: Additional working practices

6.5 Constructing the conceptual framework

To construct the initial framework for the evaluation in the focus groups a deductive analysis on the working practices is be performed. The working practices have untill now been divided into separate principles. To come to a set-up for the first phase, the most important working practices are grouped together into themes. The themes are formed in deductively analyzing the working practices identifying overlapping themes. As the working practices were gathered in relation to the affiliated principles these should not be neglected. In figure 6-4 the framework resulting from the most important working practices as presented in table 6-4 and the affiliated principles are shown.

6.5.1 Conduct a project start up (PSU)

A first theme that can be recognized has to do with the startup of the project. Multiple of the important working practices identified practices that should be organized at the start of the project. In practice this is often done by organizing a Project start up (PSU). Within these project startups the practice to create a shared vision should be organized. Furthermore, objectives should be aligned during this project start up. From the benefits and challenges it can already be concluded that this shared vision, and the shared objectives are often not entirely new, but stem forward from the vision(s) the client and contractor already have on the project. Creating a shared vision is a practice that helps contractor and client to speak out their own vision and find out about potential conflicts in the vision. Furthermore, the vision and objectives should not only be discussed in the PSU and thereafter never been looked at again. This will become clearer in the theme of working together.

Secondly according to the participants, it is important to make clear go/no go requirements for the transition to the second phase. If this was not already clearly defined during the tender, this should be done during the project start-up. Clearly defining what the expectations are can create a stable collaboration towards this important moment.

Finally, during this project start up, an agreement should be mad on how problems should be solved in the team. Clearly defining the problem resolution process should prevent unnecessary conflicts or at least help in not falling back to old/traditional behavior when conflicts arise.

6.5.2 Organize regular meetings

A second theme that describes multiple working practices is organizing regular meetings. Official meetings that are efficient with a set structure, agenda and reports is important for the collaboration. Furthermore, in regular official meetings decisions should be taken together increasing the mutual understanding of the decisions. Thirdly, informal meetings without an official agenda should be conducted. These meetings facilitate the sharing of sensitive information, and the absence of an agenda lead to a strategic conversation of the most important topics at hand.

6.5.3 Working ‘together’

A third theme describes multiple working practices that relate to working ‘together’ these are often social working practices that strengthen the connection between the team members. Arranging a shared location for the project team to collaborate and the organization of informal activities should contribute to this. These working principles are mainly from the shared feeling of us.

Secondly whilst collaborating in the project vision and objectives should be recalibrated as the project progresses.

6.5.4 Invest in involving the parent company

The fourth theme describes the involvement of the parent company in the project. First of all, it is important that the interests of the parent companies are shared to come to a shared and clear project vision. Then during the parent company should be updated on the progress of the project. This can be achieved by installing a specific steering committee with management employees of both organizations. Finally, the project team itself should have a clear and strong mandate in taking decisions. Creating a strong mandate is believed to strengthen the collaboration in the teams.

6.5.5 Share information and make it available

The sharing of information in the project is a fifth important category. The collective planning and risk register is a clear motivation for project-members to collaborate. Furthermore, relevant information should be shared trough a (online) environment. Finally, the information such as the risk register, planning and other relevant information should be monitored periodically and be up to date.

6.5.6 Price forming procedure

The final theme is the price forming's procedure. Specific to the two-phase model is the postponed definitive price-negotiation, which means that the first phase will eventually lead up to this moment. As two of the working practices on the topic of financially organizing this process have been identified as 'working against' this theme is of specific interest. The use of open book accounting seems to be an important working practice in this category. At the same time, one should create a healthy profit margin and fix this in the contract. Finally, the price should be developed periodically and corrected for changes in risk or scope.

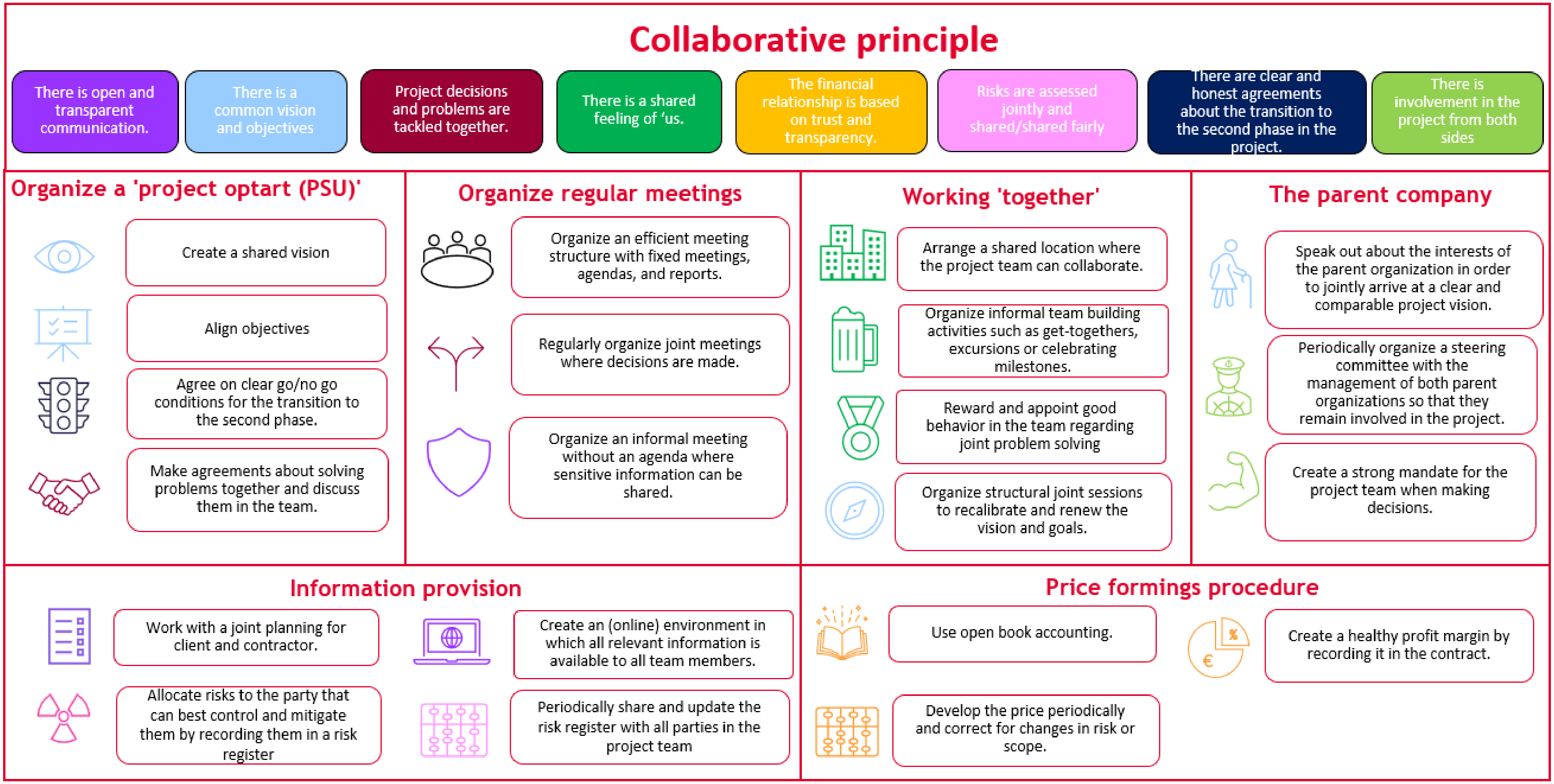

Figure 6-4: Conceptual framework

7 Focus group evaluation

In the focus group the framework as presented in chapter 6 is discussed with experts from the client and the contractor. The results of the focus group can be found in appendix D2 by means of a transcript of the discussion and the mural results. In this chapter the main findings from the focus groups are discussed. First of all, the two-focus groups will be discussed separately, then the overlapping themes are discussed. Within the focus groups the discussion was done by step by step discussing the framework, however themes often overlapped. For the reporting of the focus group the most important findings are stated, also during which of the themes the specific discussion took place. Concluding this chapter, the updated/final framework is presented

7.1 Client focus group

7.1.1 The right people for the right project (PSU)

In the evaluation it was concluded that a PSU is necessary, but not sufficient. The difference between organizing a PSU in two-phase models compared to organizing a PSU in traditional contracts is that there is a difference in roles of the participants. According to the participants with a PSU in two-phase model there is less tension between the contractor and client and conversation can therefore be more on the content. Furthermore, it is a good opportunity to talk about the difference between a traditional project and the two-phase model. One of the key issues that is discussed during this theme by the participants is selection of the right team members. The project start up should have the main function to start the collaboration process, and this can result in concluding that not the right people are on the project. This can be prevented by performing a team assesment in the tender phase, while it is not fully clear if this will be accepted by the contractor. Not only participants from the contractor should be chosen carefully, but also team members from the client. Not all members of the focus group agree on the effectiveness of a team assesment, as worries on how much the team assessment should contribute to the awarding criteria are mentioned.

It is also mentioned that it is especially important to have the right people on key positions, if a critical mass in the contract is created of two-phase appropriate people is reached these key individuals could potentially be a good example to the other team-members and help them in embracing the philosophy of the two-phase model.

7.1.2 First mitigate, then allocate (information provision)

According to the participants of the focus group, it is important to not allocate the risks too early in the process. An effort should be made collaboratively to mitigate the risks. Allocating the risks to early before it is clear how they can be mitigated can become a source of discussion. After it is clear how the risks can best be mitigated, they should be allocated. It is important that the risks are allocated to the right party, sometimes a risk can better be allocated by the client and sometimes by the contractor. How this is done in the project is of course subject to the contractual terms. A shared risk dossier is a good basis. Ideally risks should be allocated at the end of the first phase, however some risks are already being dealt with during the first phase. Furthermore, the first phase as described by RWS is specifically meant to allocate and mitigate these risks, traditionally the pricing of risk is done behind closed doors, the challenge for the two-phase model is how this should be done in an open and transparent manner often requiring justification for the client.

7.1.3 Involvement of parent company, but also sub-contractors (parent company)

The relationship with the parent company is seen an important subject. However, it comes with some big opportunities and challenges. Especially in interests that are bigger than the project itself this can create opportunities, for instance when the project is part of a larger program. At the same time, it can be challenging as the project can be collaborating very well, sometimes parent-companies have certain orders (specific instructions from the senior management) that must be executed by the project teams. Trust in the project team and sufficient mandate is therefore especially important, and agreements should be made with the parent company on what to expect on for instance the price forming procedure. The participants indicated that these direct instructions from the parent companies can be difficult to deal with, as long as these instructions, are dealt with together, conflicts can be avoided. The -sub-contractors should also not be forgotten as important external party. Often these sub-contractors are not part of the two-phase contract.

7.1.4 We-feeling is important (working together)

Building forth on the notion in the 7.1.3 it was commented that the challenge of a parent company interfering can be mitigated in the project team by creating a sense of togetherness. Discussing the interests or side steering from the companies and dealing together is seen as not a full solution, but a great approach in dealing with these problems. Working together on the same location, can incentivize these interactions and is seen as a contribution to the creating trust. Even working within a certain framework such as the UAV-IC, should not be a hindrance to the creation of a shared feeling of us. It can be necessary to work with such a framework, it should than be communicated clearly that this framework is not used in a traditional manner with checks and balances.

7.1.5 Meetings (organize regular meetings)

One of the challenges on organizing regular shared meetings is that these meetings are also being conducted individually. While some consultation with the separate organizations is always, these should not act as shadow meetings, the decisions and discussions should be had with all parties around the table.

7.1.6 Do as you say and say as you do (working together)

One of the generals advises can be interpreted as: do as you say and say as you do. The first part relating back to the key individuals in the organization. They should set an example on how to collaborate. But also, if one of the own team members is having a challenging time in collaborating in this new method, to also discuss this an informal meeting (BOT-meeting) could be a good place to discuss this and is also important. Secondly, say as you do is seen in the suggestion to implement storytelling and give team members that do well in the collaboration a podium. The project vision on collaboration and what is important should be repeated as much as possible. In general, making the collaboration something that is talked about seems to be important. This can be facilitated by using a theoretical model.

7.1.7 Freedom in price is a benefit for the client (Price forming)

The final aspect is related to the price-forming procedure. A counter-intuitive thought was that the freedom in price is actually a large benefit for the client as in the meeting it was mentioned that this freedom is often seen as mainly a benefit for the contractor by the client. A call to be more egoistic as client was made by one of the respondents. In traditional projects on average 23% of increase in price due to scope changes is accepted as normal. Therefore, a price after a traditional awarding actually can be considered as a false security. Multiple examples are brought forward by the participants on the price increasing a day after the awarding, within the two-phase model, the price can be steered much better in the first phase. If in the first phase a conclusion is drawn that the project is going to be too expensive it can still be decided to not continue. This is relatively low in cost, comparing to a traditional contract in which the client can only pay the additional works.

Price aspects can be made very transparent. By for instance implementing cost-prices with an auditor's report. Most of the costs made by the contractor are not variable as 85% of costs are bought in by the contractor most of the time. This means that only 15% is influenceable. By focusing on open book, the traditional mechanism of the contractor looking for holes in the contract, to profit form is totally removed. This does mean that up-front a more realistic prognosis should be made, meaning that probably key figures should be changed. In practice the challenge is not the price itself, but the project approach and the risks that influence the price.

Almost every client requests some kind of financial plan in the tender. However, some of the clients also require a lot of checks and balances or cost-drivers to be provided. It is concluded that if an open book approach based on trust and transparancy is opted, for asking for these checks is not a good first step. The client should also be open and transparent, delivering a cost reference to the contractor in the tender phase is considered to be essential, this can also act as an early warning sign for the client.

7.2 Contractors focus group

7.2.1 Keep the options open to change the team members (PSU)

As a first theme the participants indicated that it is important to keep the option open to change team members in the case that the collaboration in the teams is lacking. In the PSU normally everyone wants to collaborate, but in later stages this can be difficult. It can help to do a type of team assesment or let the project managers chose team members that they know can work in the new collaborative environment. Sometimes project team members can be imprisoned by the contract, an option to change team members should be included. A good practice is that with changing the team members the organization proposes two team members from which the other organization can choose. If team members match in the project the collaboration will almost always be good.

7.2.2 You need keypersons in your project to act as an example for the collaboration (PSU)

At the same time team-members can learn to collaborate in a new-way. It is especially important to have key-individuals in the project team that know how to collaborate. They can teach new team-members or team members that have difficulty with the new-way of collaborating.

7.2.3 Transition to next phases should be fluid, only the transition to the realization phase should be hard (PSU)

On strictly defining the no/go criteria it should be noted that this can also put the collaboration under pressure. Transitioning to new phases within the first phase should be done fluently. This should be supported by mutual trust. For instance, if archaeological information is not needed directly this can be postponed and should not influence the planning for the next phase. The only go/no go moment that should not be fluid is the transition to the second or execution phase.

7.2.4 Organize a legs-on-the-table-meeting (Organize regular meetings)

There is a difference between official meetings and consultation meetings. A pitfall is to have to many meetings if meetings are held individually and collaboratively, deleting some meetings can help increase the amount of content in the meetings. Consultation meetings can also be labelled as work sessions to encourage the working together in these meetings.

Organizing a leg on the table meeting (BOT-meeting) is important. The goal of the meeting is to have an informal get together which involves a strategic consultation and can also be used to discuss tricky situations in the project team. The BOT-meeting should be the last resort to discuss problems, it is always important to try and find solutions within the team first before solving the problems in this meeting. No official report of these BOT-meetings should be made, and it should be clear that these meetings are not to be used to act upon by either party officially. This would disrupt the goal of the BOT-meetings. However, the topics discussed in the meeting should be shared with the whole project team.

7.2.5 Dare to work together before working everything out yourself (Information sharing)

A pitfall possibly stemming from old behavior is to work out information yourself as the contractor and not asking questions. The old behavior dictates: we are a good contractor so we should be able to figure things out ourselves. However, it is often more useful to clarify what is meant by the client and work collaboratively. It can also be a technical oriented trait to want to find the solution by yourself. A set procedure of meetings can help in behavior in which the contractor is working more collaboratively.

7.2.6 Share information wisely (information sharing)

Access to the system is in some projects fixed in the contract. This can be difficult as the client should not act on information they see there too quickly, has the tendency to do so. Information can be wrongly interpreted because of missing context. It is important to have clear agreements on who has access to the systems, and that conclusion will not be drawn without discussing first. Furthermore, a risk on micromanaging from the Client should also be averted. It should also be mentioned that is important to five attentions to the sharing of information. People might be used to working in their own archives. Another challenge is that none of the information mgt systems are waterproof and user friendly yet. Working with GIS and BIM, seems to be a great opportunity, but is not fully embraced yet. Clear agreements on this are important e.g. If it is not in GIS, it is non-existent.

7.2.7 Is it possible to create shared interests (parent company)?

One of topics that could not be fully agreed on in the focus group is the possibility to create shared interests between the contractor and the client. The contractor will always have a commercial interest and the client has a political interest. However, the financial and different interest is believed to be omitted by speaking out the interests and also being open about them. Some participants agreed that it is possible to create one interest in the first phase. A difference in interests will always be there, but it is possible to combine the two interests.

The interests of the project organization should also be clear at the parent companies, and however a strong mandate is seen as important this is not possible for every project, especially at the organization of the client which has many layers.

7.2.8 Make the informal activities appropriate for all team-members. (Working together)

Working together on a shared location is seen as important, however it should also be noted that the scheduling, when is who working on the location, should be coordinated.

As a final remark into the working together category, the respondents mentioned that often the informal activities, such as drinks excursions and milestones were only visited by specific type of team members. This created two groups in the project, so when organizing this, attention should be paid to organizing the right activities for the ‘boys. Inviting family members to the project or something at the project side is encouraged.

The informal activities could be organized in combination with the recalibrating of the vision and goals. Important in these meetings to make use of storytelling and share good practices.

7.2.9 Open book

Open book creates more opportunities in scope and a higher value for the project can therefore be reached. Open book is not all saving, sometimes justification to specific, we should also be pragmatic. This can be a challenge for the client as they have to justify from a political view. Open communication is the solution to solving these issues, the client being open about the requirements and the contractor about the possibilities. Not just the contractor should be open and transparent, also the client and especially the organization behind the project team often must get used to this. Openness works two-ways.

A detailed cost estimate can be a good start in the price forming procedure, however it should be possible to deviate from this estimate in the first phase, we should also be careful on implementing a profit margin as this can have a perverted incentive. Fixed price elements are easily bypassed or can create false conditions.

7.3 Creating a shared identity

The participants were also asked what the importance of the formation of a collective/collaborative identity in the project is. All participants concluded that this is especially important for the project. A comparison by one of the participants was made to being part of a football-team. Furthermore, it was also mentioned that this is not exclusively the case for two-phase models but should be important for every large and complex project. A good project manager creates its own environment. A team is created within a week or will never become a team anymore.

UAV-CI is only a framework, there is freedom to choose if checks and balances play a significant role. Important in this framework is that the design is the responsibility of the contractor, but the client can always help in things that are better suited for the client. As mentioned before this should however be communicated that the framework is not used in the 'traditional' way.

Engaging with external stakeholders can be extremely helpful to do as one organization. Some parties are more open to collaborate with the client, others are more open to work with a contractor party, by realizing this a lot of benefits can come from this. Also, important to include the management organization, who will after project completion take over the product. Creating a one integrated team is important is advised in contrast to working with two separate IPM teams. However double roles on content can be beneficial as it can benefit the communication.

If you can create the feeling that people are colleagues a shared identity is created and shared interests as well. To create this shared feeling a good PSU, good succession and good agreements are necessary. Collaboration should be seen as a separate project goal; effort is needed to reach this goal.

7.4 Focus groups conclusion and framework update

Coming back to the goal of the focus group: to evaluate the framework, and gain additional insights, a conclusion can be made, and the framework can be updated (see figure 7-1). The key aspects are summarized in table 7-1. a more elaborate discussion on the interpretation of the results will be done in the discussion.

Aspect	Client	Contractor
Right people on the project	X	X
Key individuals	X	X
Mitigate than allocate	X	
Transitioning to next phases fluid except for transition to second phase		X
Also include the sub-contractors	X	
Informal activities should be appropriate		X
Shared meetings	X	X
BOT-meeting	X	X
Storytelling, Sharing of good practices	X	X
Dare to work together		X
Share information wisely		X
Open book, freedom is a benefit	X	X
Cost reference	X	X
Avoid using fixed price elements in the tender phase	X	X

Table 7-1: key aspects form the focus group

The changes to the framework can be found in appendix C11. In general, some working practices that came up in the focus group and are supported by the participants are added to the framework. Some of the working practices are slightly reworded to better describe the practical situation. The changes to the framework due to the input of the focus groups is indicated by the red text.

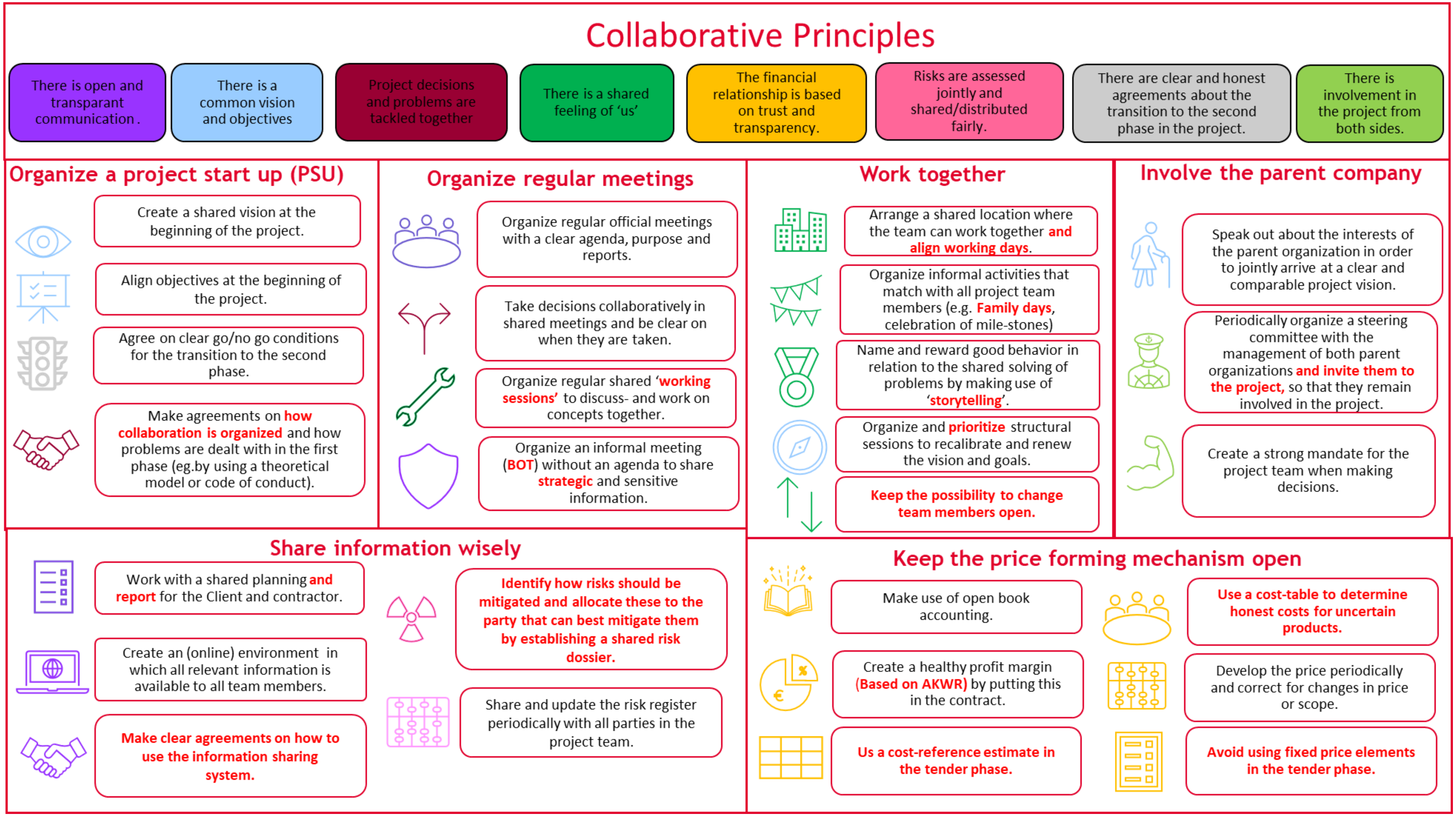

Figure 7-1 Final Framework (With focus group change indication)

8 Discussion

The goal of this chapter is to interpret and describe the findings as found in the research. Therefore, the results as reported in chapter 6 and 7 are discussed and interpreted. Part of the interpretation is already performed in chapter 6 as this is needed to construct the framework. Furthermore, the validity and limitations of the results are discussed. First the benefits and challenges as identified in the survey and their relation to the working practices and principles is discussed (8.1). Then the collaborative principles are discussed (8.2). Thirdly the working practices are discussed. (8.3) after which the framework is discussed (8.4) followed by a discussion on the specific application of the working practices and principles to the two-phase model. To conclude the concept of a collaborative identity in relation to the working practices and principles is discussed (8.5) and the limitations and validity of the research is discussed and recommendations for future research are done (8.6).

8.1 Relating the identified challenges and benefits.

The main challenges and benefits to the two-phase model can be seen as the requirements for the design of the framework. The benefits mentioned by the participants further support the argumentation made on the importance of collaboration and show the relevance of the two-phase model opposed to other project delivery models. The challenges that were identified further strengthen the relevance of the working practices and principles as they aim to deal with these challenges. The challenges found trough the survey also confirm the challenges that were identified in the literature review in chapter 2: the soft aspects of collaboration; the postponed price and the different organizations.

In the introduction collaboration was argued to be of importance in the first phase of the two-phase model (Fijneman, 2020; Clemens, 2021; Nagelkerke & Dijke, 2019) and one of the purposes of the two-phase model is to increase the level of collaboration between contractor and client (Rijkswaterstaat, 2020). The results of the survey are consistent with this argumentation that collaboration is an important aspect in the first phase. However, the survey also identified some challenges to the collaboration in the first phase. The importance of collaboration was also confirmed by the focus groups. The findings of this study do therefor support the importance of collaboration in the first phase of the two-phase model.

The new-ness of the two-phase model was recognized by the practicioners as one of the largest challenges, a broader theme is found in the new way of working. The results from the survey indicate that a lot of effort should be put in to make clear what the new model entails and how collaboration is organized in the new model. The new way of working that is now being conducted in the two-phase model is expected to be part of larger trend that will influence other large projects that are organized less relational as well. However, the ‘new way’ is often still unclear. It can therefore be concluded that the problem statement is indeed relevant.

The challenges strongly relate to the proposed working practices and principles. Falling back to traditional behavior, especially when conflicts arise can be dealt with, by making agreements on how collaboration is organized and how problems are dealt with in the project. The financial relationship, which is often a source of conflict should be built on trust and transparancy. Furthermore, a shared feeling of us should be created by working on a shared location, organizing informal activities and rewarding ‘good’ behavior. Also, the possibility to change team members should be present if team members fail to collaborate in best-for-project manner.

Secondly the division of risk was seen as a challenge. The two-phase model allows for the division of risk to be done in the first phase after the awarding is done. Therefore, the division of risks can be done collaboratively. To support this process the survey showed that allocation and mitigation of risks should be performed by establishing a shared risk dossier. Furthermore, the risk register should be shared and updated regularly with both parties in the project team. The focus groups showed that before allocating it should first be identified how the risks can be mitigated best. Therefore, to deal with the challenge of dividing the risks, both parties should be involved in the process of identifying the risks and investigate how they can be mitigated best, this can for instance be done by performing risk-workshops. After this step, when the risks are clearly divined, they should be allocated to the party that can best handle them.

The third challenge related to the price forming process. Unique to the two-phase model, this process is done after the rewarding of contract. The results from the survey indicate that the price forming process should be based on trust and transparancy. The survey showed that the most important working practices to accommodate for such a relationship are the use of open book accounting, and a healthy profit margin as part of the contract, to avoid discussion on these topics. Furthermore, during the first phase the price should be developed periodically to correct for changes in scope and price. The focus group further solidified these results. From the focus groups it became clear that the two-phase mode can create an environment in which the discussion on price is eliminated for the most part by implementing these working practices. However, this can only be done if the awarding criteria do not include fixed price elements, as this will only limit the design freedom. According to the focus group most of the price can be constructed in a transparent and open way, as costs for product are very clear. To determine the costs for product that are more difficult to price an open cost table is suggested.

The final challenge relates to the new-ness of the two-phase model. The survey indicated that clear go/no conditions can be used to clarify the transition to the second phase. From the survey results it is found that organizing a PSU to identify joint goals, a shared vision and discuss the organization of the first phase is important. As the two-phase model is indeed a new approach for the sector organizing a PSU can be considered vital, however during the whole lifecycle of the project agreements made in the PSU should be considered and evaluated. The whole framework as a result of this thesis can be used as inspiration on how to organize the first phase.

8.2 Collaborative principles

The result of this study indicates that to improve the collaboration in the first phase of the two-phase model certain principles should be implemented within the project. The most important principles are: Create a shared vision and goals; open and transparent communication; project decisions and problems are tackled together; there is a shared feeling of us, and the financial relationship is based on trust and transparancy. Interesting enough these principles can be identified as ‘soft’ principles. The principles agree with what was already concluded by Suprapto (2016) Hietajärvi and Aaltonen (2018) and Ligthart (2021), mainly the soft, relational aspects are important to collaboration.

Although a ranking could be seen in the principles, the distribution of the principles is rather wide. This means that the participants did not all agree on which principles are most important to collaboration. The difference in opinion should not be neglected. A possible explanation for the differences between the practioners is that in collaboration, different people are always involved. In every project, different characters, people and therefore also a different principle might be important. All the principles in the survey were considered to be of importance for different collaborative project delivery models and are grounded in literature. The list of most important principles should therefore be seen as specifically to the two-phase model, and as most important, not neglecting the importance of the other principles.

There are however some of the principles that are clearly ranked lower on average. The principle of achieving the planning goals and the focus of implementing improvement are two of these principles, which have been considered of importance by Hietajärvi and Aaltonen (2019), Ligthart (2021) and others. This raises the question of why in this study the principles did score lower. It can be expected that these principles are still considered to be of importance for the overall project, as for instance the joint planning is one of the most important working practices, but it might be the case that in the context of collaboration, these principles might become less important. This idea is further solidified by one of the participants in the focus groups, who mentioned that the technical/content side of the project is not the challenge, contractor and client are in the position to put very good people related to content on the project who can make an excellent planning and implement innovative products into the project, he mentioned that the actual challenge is found in the collaboration in and between these teams. Furthermore, the two-phase model is based on a collaborative first phase, which means the experience and expertise of the contractor is already available in the first phase, making these principles less important.

Another principle which scored relatively low was the 'create a no-blame culture' principle. The no-blame culture is most prominently found in the alliance context, as the two-organization fully integrate to one organization. While still mentioned that blaming the other party does not contribute to the collaboration in the focus groups, from the survey it is often considered of less importance. Ligthart (2021), introduced this principle as a working practice to the value tolerance, arguing that it stimulates relational attitudes (Suprapto, 2016). As the creation of a no blame culture is quite a general theme, it was inserted as a principle in this thesis. Other principles such as the shared feeling of us, dealing with conflicts constructively and open and transparent communication can include this principle of not blaming the other party. Therefore, it is expected that the reason for this principle to be ranked this low, is the overshadowing of the other principles.

Finally, the selection of the contractor based on collaborative competences was seen as relatively unimportant to the collaboration in the survey. This is an interesting finding as the focus group indicated a high importance of selection on the right people using team assessments. This seems like a contradiction. One of the reasons why this principle might have scored low, is that the selection on collaborative competences was only attributed to the contractor. As the focus group also indicated the client should give the example, and also select its own team members on these competences. However, the client itself can of course not be selected. The second reason might be the focus on the 'contractor' instead of the team-members within the contractor's organization. It seems that the contractor itself should not be selected on these collaborative competences, but for the collaboration in the first phase to be successful selection within the contractor's organization for the right people should be organized. Limbergen (2020) also mentions a difference between the collaborative criteria and the use of team assessments itself. As he concluded collaborative criteria are becoming more and more common with the trend of the collaborative project delivery models. The use of the team assesment as a large part of the EMVI criteria is still, being discussed by some of the clients and contractors, but seems promising.

8.3 Working practices

The primarily positive scoring of the working practices meant all working practices are in some sense important and could be seen as a list of possible ways to organize the first phase. However, there are some practices that are on average more important than others. The most important working practices were just as the principles all considered to be of some importance to the collaboration in one of relational project delivery models. The survey confirms this by the positive scoring of the working practices in general. As it is not possible to implement all working practices in a two-phase model project, these practices should be given priority. The most important working practices are discussed more in depth in chapter 8.4 by discussing the framework.

8.3.1 Least important Working practices

External influences such as a coach and external expertise seem to be least important for the collaboration. While this has been suggested as being important (Van Riggelen, 2019) who research the bouwteam model these seem to be of the least importance in the two-phase model. As the bouwteam and the two-phase model a disagreement can be found here. Involving external coaches and expertise is probably not seen as important to the collaboration, as these external influences might interfere with the relationship in the teams.

Furthermore, the implementation of financial incentives to either achieve objectives or the planning of the project is seen as unimportant. These financial incentives also might disrupt the open and transparent financial system, and in context of the principles and other working practices this seems logical. Thirdly evaluating the collaboration of the project team belonging to the principle of a no blame culture seems to be relatively unimportant, while other informal moments to reflect on the collaboration in the team were indicated to be important by the focus group participants. The evaluation is therefore expected to be important, but should not be an official process, but more part of the collaborative culture. The evaluation is part of the Reflection and self assesment as proposed Ligthart (2021) for the Values of trust and best-for project. To operationalize this working practice an anonymous evaluation was proposed. However, the self-assesment is lost in this instance, and some type of reflection and self-assesment is important as argued by Ligthart (2021), but the anonymous evaluation is seen as less important.

The option of 'working against' was only used a few times and is mainly used on two working practices that indicated detailed or fixed price restrictions from the tender phase. These results indicate that limiting the freedom of price in the first phase should be avoided

8.3.2 Additional working practices

From the survey some additional working practices were suggested by the participants. Five of these additional working practices were not yet in some sense included by any other working practice or principle used in the survey. The working practices were however only suggested by one of the participants, and as the survey was only performed once the importance of these additional working practices cannot be assumed in the scope of this thesis. The additional working practices were however considered with regards to the focus groups. The right leadership in the projects was mentioned by both focus groups as important, as the right people on the right project and especially ´key individuals´ were mentioned. The rules of conduct were also mentioned in the focus groups. This can be incorporated in the project start up by expanding the working practice of making agreements on how collaboration is organized. The decoupling of contractual discussions is recognized in the focus groups by the different types of meetings (Informal, formal, working sessions).

Finally, two of the additional working practices did not resonate much with the focus group discussions. The control of the main risks as part of the contract and the clear end-milestone for the first phase. The clear end milestone is however identified as one of the challenges mentioned by six of the participants in the survey. The importance of a hard and clear go/ no go moment towards the second phase is however considered as an important working practice and also considered important by the focus groups. Therefore, the setting of a clear milestone can be seen as part of these clear go/no go moment as agreeing on these conditions should include a final product for the first phase.

The importance of making main risks part of the contract can be disputed. Participants of the focus group indicated that allocating risk before investigation how, and by whom these risks can be best mitigated should not be done. One of the benefits of the two-phase model is to postpone the risk allocation and agree on how to mitigate the risks in the first phase, instead of fixing this in the contract before the first phase. After the first phase however, the risks should be allocated, and it should be clear who is responsible for mitigating the risks (Clemens, 2021). Risks that cannot be allocated to one of the parties should be split up into causes, making it possible to allocate, or can according to Clemens (2021) be mitigated by using the shared risk pot.

8.4 The Framework

From the results of the survey and focus groups an updated framework for the design of the first phase was developed. The framework is split up into different themes. These themes are interpreted and evaluated in this section. This solidifies the relevance of this research, as the framework is intended to guide the process of organizing the first phase. Discussing the final framework also discussed the most important working practices as they are part of this framework.

8.4.1 Organize a Project start up.

While organizing a project start up itself is not sufficient to ensure good collaboration in a project, it offers great opportunities for the team members to create a shared vision, goals and make agreements about collaboration and the go/no go moment. The specific working practice of organizing a PSU was therefore also not considered as most important as it ranked 24th, but multiple aspects that should be organized at the start of the first phase are. As became clear in the focus groups the PSU is also a good place to check whether the right people are part of the project. By discussing the collaboration in the project start-up, it becomes clear what the interests of both parties are, and which individual qualities team members bring to the table. A project start up is only the start, and intentions are often still good during this event. Effort should be put in keeping the agreements from the project start up active during the rest of the project. The project start-up is also commonly used in two-phase models (Nagelkerke & Dijke, 2019) and is also advised to be implemented in bouwteam models (Van Riggelen, 2019).

Creating a shared vision at the start of the project is also considered of importance by the alliance literature (Hietajärvi and Aaltonen, 2018; Ligthart, 2021; Voordijk & Dewulf, 2011) and two-phase model literature (Clemens, 2021; Fijneman, 2020; Nagelkerke & Dijke, 2020). Therefore, it is no surprise that for the collaboration in the first phase this is one of the most important working practices. While slightly different the creation of shared objectives is also considered of importance. As mentioned in the focus groups these objectives and the vision should however not only be made in the psu, but also be updated and used a guidance for the rest of the project.

Making agreements on solving problems together should also be done in the psu. This working practice mainly mentioned in the alliance literature (Chen et al., 2012; Voordijk & Dewulf, 2011;Yeung et al, 2017) is also found in the pilot projects of the two-phase models (Nagelkerke & Dijke, 2020). From the focus groups it was derived that including agreements on how to collaborate should also be added. This can include a code of conduct or theoretical model on how the communication is organized, conflicts are handled, and information is shared.

Finally, the psu is a good moment to reflect on the tender and look forward towards the end of the first phase by discussion clear go/no go conditions. This working practice also is found extensively in the ECI/bouwteam literature (among others: Dhonr, 2021; Wondimu, 2016), as the bouwteam and ECI literature often deals with a clear split between the design and construction phase.

8.4.2 Organize regular meetings

While from the results it should be concluded that a culture of meeting after meeting is not beneficiary for the collaboration, organizing a set arrangement of official meetings is important for the decision-making process and the involvement of both parties. Dhonr (2021) suggested that this working practice could improve the collaboration. While not extensively reported in the other sources, this working practice is probably often assumed as most projects have such a structure. However, the absence of clear set meetings can result in the two parties not communicating when needed.

The organization of informal meetings (so-called legs-on the table meetings) is according to the results an important aspect influencing the collaboration in the team. The informal meetings could only be found as a suggested working practices in the ECI-literature (Rahmani et al, n.d.; Rahmani & Alhassan, 2012).

However, the focus group found a large benefit in these informal meetings. The informal meetings can have a strategic purpose to discuss the important developments in the project, without a set agenda.

A third type of meeting which should be organized are the so-called working session. These working sessions can be used to discuss conceptual designs, documents and work together on the project. The focus of official meetings is often to make decisions and is extensively reported. Adding a different type of meeting to collaboratively work on the design helps the parties to embrace the collaborative mindset. This working practice was not found in any of the literature sources but was derived directly from the focus groups.

8.4.3 Work together

From the work together theme, it can be concluded that it is important for the collaboration that 'hands on' collaboration takes place. Creating a shared feeling of us by working in one shared location, organizing informal activities, and the rewarding good behaviour can be argued to be vital to the successful collaboration of a team in the two-phase model. The shared location is also considered of importance in alliance structures (Ligthart, 2021). As project members often work on different days in different projects, the focus group members added to this working practice that working days should also be aligned to benefit from the shared location. The informal activities have the purpose to invest time into each other and celebrate milestones. Investing time into each other was found to be most important for the collaboration by Ligthart (2021) as well. Furthermore team-members that have difficulty in collaborating this way should be either taken along and inspired by the key-figures in the project or be swapped if this method is not for them. It is also important to have the right people on the project. Team members that are willing to collaborate in the 'new' way and can work with a best for project mindset. The selection of the right people is strongly supported by the alliance literature (Chen et al. 2012; Laan et al., 2011; Ross, 2013). Furthermore, the use of team-assessments is a common practice in the two-phase-pilot projects (Nagelkerke & Dijke, 2019) and other relational project delivery models (Limbergen, 2020). The use of team assessments as a large part of the total awarding could however not reach consensus in the focus groups, as it was seen by some of the participants as subjective. If the team assesment is therefore the right tool to ensure the selection of team members is still a point of discussion, however the right people in the project are important and the team assesment, seems to be the current best method to assess this.

8.4.4 Involve the parent company

The results indicate that the involvement of the parent company is an important aspect and can either give the collaboration in the project a huge boost or disrupt it enormously. The difficulty in the relationship with the parent company was already identified by Bakker (2010). Periodically involving the parent company and sharing company interests in the project, but also vice versa a shared feeling of 'we' can still be maintained and frustrations on involvement of senior management form parent organizations can be mitigated. Inviting the parent companies to the project and organizing a steering committee can further help in communicating these interests. This importance of senior level commitment from the parents' organizations is also found in the alliance and ECI literature (Rahmani et al., n.d.; Yeung et al, 2007;).

A strong mandate of the project team could also help, but this is not always possible for every project as the political interests are often high in large and complex projects.

The working practice relating to the sharing of the interests of the parent organisation, can already for a large part be done in the PSU as part of the aligning objectives and creating the shared objective. However not all interests from the companies can be brought together in a shared objective or a project vision. The parent company will still differ, as one of the companies is a public organisation and the other a private organisation. Is therefore important in the project to keep discussing the interests of the company during the project as well. As in the two-phase model not a new legal entity, such as with the alliance, is constructed, this working practice is even more important as in the alliance.

8.4.5 Share information wisely

The results show that for a successful collaboration project information should be shared wisely. Sharing project documents in an online environment, including a shared planning and a clear reporting structure is important. However clear agreements on who has access to- and when acting on conceptual documents is done should be made to prevent drawing conclusions from them out of context. Secondly the results show that the mitigation and allocation of risks is an important goal of the first phase. Furthermore, these risk should be shared and updated in shared risk dossier. The risks should be identified in the first phase and an investigation on how these can be mitigated should be performed before allocating them to a specific party. By allocating the risks to early the risks can become a potential topic of discussion and benefits are found in postponing the allocation to the end of the first phase if possible.

Working with a shared planning and reporting structure for the client and the contractor is considered to be important. Van Riggelen (2019) already argued that a joint planning should be set up together to ensure that all important activities are present. The planning should also include deadlines and decision moments (Van Riggelen, 2019). Focussing on the planning can also benefit the formation of a collaborative identity and prevent adversarial behaviour. (Ligthart, 2021)
Next to the shared planning an online environment in which all relevant information is shared should be used. Sharing of information is argued to be of importance by numerous of the earlier mentioned sources across all literary streams. (Among others: Che et al., 2012; Ligthart, 2021; Van Riggelen, 2019; Womindu, 2016). It is therefore not unexpected to be of importance for the two-phase model as well. However as mentioned in the focus group, clear agreements on how this environment is used should be made between the contractor and client as transparancy and openness should also be based on trust. Specific online systems such as GIS, can be used to incorporate all the relevant information such as the risk dossier, the planning and the reporting.

8.4.6 Keep the price forming process open

The results indicate that keeping the price forming process open in the first phase based on trust and transparency is key to successful collaboration. The use of open book accounting should be embraced by both client and contractor.

Fixed elements in the tender phase such as detailed cost-estimates and fixed unit prices seem to be false securities and only make the collaboration in the first phase more difficult. However, these fixed price elements are often used in two-phase models (Nagelkerke & Dijke, 2019) and is commonly used in two-stage tendering in New Zealand as well (NZGP, 2019). The discussion in the focus group indicated that enacting fixed price elements and detailed cost estimates during the tender phase limits the freedom in the first phase and can therefore be considered to be of negative influence on the result of the first phase. Furthermore, the result of this study indicate that these fixed elements also negatively influence the collaboration as the principle of trust and transparency is not shown by the client when the contractor is supposed to already fix all these prices.

To still create a feeling on the expected price a cost-reference estimate should be provided by the client in the tender phase, which can then be used by the client to make a rough estimate. This can in the first phase be used as a first basis for the price forming procedure. In the focus group sharing such a cost reference as client can clearly show the first step in transparency and trust and can also be used as a first fail-safe on the expected costs of the project.

Furthermore, a healthy profit margin based on (AKWR) can be put in the contract to prevent discussion on this topic. The price should be under constant development in the first phase to enable the possibility of scope changes which are common in large complex projects. Risks and price are dependent on each other, so if new risks arise the price should be adjusted (Van der Pas, 2020). Finally, from the focus group implementing a cost-table to identify costs for some of the products. While not specifically mentioned van der Pas (2020). Mentioned that cost considerations should be performed for the design options.

8.5 Collaborative identity

The most important principles are also argued to be of importance in the research of Ligthart (2021) and Hietajärvi and Aaltonen (2018). Described as values that contribute to the formation of a collaborative identity are trust and openness, transparency seen as most important to the alliance (Ligthart, 2021).

The aspects that were identified by Hietajärvi and Aaltonen (2018) to be of importance for the formation of a collaborative identity in the alliance project resonate with the principles identified to be of importance for the two-phase model. The joint vision and a shared collaborative mentality are confirmed by the findings of the survey and focus group. He also argued that designing ways to work with multiple identities should be done. This is also found to be important for the two-phase model as well. The attaining of distinctiveness and legitimizing activities was not specifically found in this research, but Ligthart (2021) did already mention that these working practices could be seen as specific to the situation in Finland in which the first alliances were researched. The practioners of the two-phase model do not seem to be concerned on legitimizing and attaining distinctiveness of the two-phase model.

Furthermore, the principles can be recognized in the best-for project decision making and a shared commitment to the project. Hietajärvi and Aaltonen (2018) stated that it is important for a project to create a shared feeling of us in the projects which was argued to be of importance for the two-phase models as well. Furthermore, the results from the focus group indicate that the formation of a shared identity is important for all large and complex projects. However, the two-phase model is a model that facilitates this formation, by expanding the possibility to work collaboratively in the first phase. The working practices from the framework confirm the association between a good collaboration and the collaborative identity and are in line with the identified hypotheses from the introduction that collaboration is for the most part about people working together. The trend towards more relational contracts is recognized by the practitioners, and old behaviour is seen as one of the greatest challenges. For a successful collaboration, the formation of a collaborative identity is seen as necessary, but sometimes difficult to create. The working practices as presented in the framework could contribute to creating such a feeling of togetherness in the first phase.

The results indicate that a division in principles and working practices instead of working with values and working practices, can make it more clear what purposes should be pursued in projects. The identified model in chapter 2 further supports the division made on values working practices and principles (norms) (Hietajärvi and Aaltonen, 2018). As the literature only identified collaborative identity being a combination of these aspects a conceptual model identifying the relations between the aspects will solidify research around collaborative identity.

8.6 Limitations and future research

The results from the study are only as strong as the data gathered, therefore the validity of the empirical data gathered is discussed first. Secondly, limitations to the results due to the scope of the thesis are discussed resulting in recommendations for future research.

Validity of the survey

The principles and working practices are carefully gathered from literature. This strengthens the validity of the survey. However, a limitation is found in the use of former thesis documents instead of using scientific literature that is published in scientific journals. The internal validity is strengthened by discussing the working practices and principles with the super visors from the company and university.

Some other limitations on the survey should be discussed here. The first limitation can be found in the number of years of experience with the two-phase models by the participants. Most of the participants had less than two years (41%) of experience with the two-phase model. It is not fully clear if this related to the two-phase model being rather new, or if the participants are rather new to the construction industry. Participants of the survey were asked to fill out the survey, not only from their current project experience, but also previous projects, this does strengthen the knowledge base.

A second limitation is the list of working practices and principles. As time for a master's thesis is only limited the literature study conducted to gather the principles and working practices was set up to find enough working practices for each principle. This means that it cannot be said with certainty that there might be other principles, which might have been missed. Therefore, the study should be seen as a start in a much larger process of research in the direction of collaboration and Collaborative identity.

A third limitation is the sample size of the survey. The survey did enable the researcher to gather reactions on 78 working practices and 14 principles rather quickly, 32 respondents filled in the complete survey. Depending on the definition of the population, the sample size might not be fully significant to the population. The survey was completed by thirty-two participants. The survey should therefore not be seen as a quantitative analysis with a significant part of the population, but more as a sampling study meant to provide an explorational study of the possibilities. As the study is based on the opinions of the practitioners. These opinions might be subject to subjectivity and possible group think as projects tend to learn from each other. As the two-phase model is still rather new, it is not possible to evaluate the first phase of the projects adequately in for instance a regression analysis on collaboration.

A good division between the six projects is reached which is a benefit of using the survey instead of a case-study, which would have been more difficult to reach this many respondents. Furthermore, a good division between the contractor and client is reached in the survey, resulting in results that are considered important to both parties of the collaboration.

Finally, is should be noted that the practioners are now working within bouwteam models and the two-phase model. As team assessments often take place and often team members that are fit for such a kind of model are part of these projects, it should be noted that some kind of confirmation bias could take place. A more positive view on the two-phase model might therefore be created and it should therefore be carefully noted that the results as presented in this report are applicable to bouwteam/two-phase models and should always be considered with these limitations.

Validity of the Focus groups

The focus groups were conducted by contacting participants that are considered as experts and active practitioners. In the focus group the same variety in project background is reached, and by differentiating between contractor and client both parties were present to evaluate the framework. A limitation of the focus groups can be found in the limited time frame. The moderator had to be strict to discuss every subject in the focus groups, which might have resulted in missing certain aspects. This was mitigated as much as possible by conducting a pilot focus group, which let to reducing the number of topics to be discussed only focussing on the most important aspects. Conducting two separate focus group also validated the updates to the framework as both focus groups are conducted independently, but themes resonated. The results of the focus group indicate the validity of the framework as recognition was found in both focus groups. Furthermore, the participants are from different clients and contractor organizations and from different project backgrounds, which strengthens the validity of the focus groups. Generalizing the focus group results cannot be done yet, as the time for the focus groups was very limited, and the moderator had to be tight on the schedule, some of the results were not fully agreed upon and only a small part of the population was part of the focus groups. Furthermore, only two focus groups were conducted, and ideally multiple focus groups with more or less the same type of experts should be conducted to confirm the findings.

8.7 Scope limitations and future research

Future research can be conducted on the switch to the second phase should be made, and if the second phase should also be organized similarly or if the second phase due to the increased effort should be organized traditionally. The first phase is a preparation for the second phase. The current research focussed on the collaboration between client and contractor in the first phase of the two-phase model. The scope is clearly focussed on the first phase, and therefore the execution phase is not discussed.

Secondly, the topic of this study is focused on collaboration. All aspects such as risk allocation, price forming, and planning are scored in light of the improved collaboration. As a good collaboration is seen as one of the key ingredients to a successful executing of the two-phase model, the working practices and principles can be carefully considered to be of importance to project success as well, however this should also be evaluated, certain working practices might improve the collaboration, but might be scored differently relating to project success. Furthermore, the output variable chosen in this study is the collaboration. It is argued that an improved collaboration leads to a better project result. It is recommended to perform more elaborate research on the overall success factors to the two-phase model.

Thirdly, the focus on working practices and principles that have been proven to be beneficial in other related collaborative models did limit the scope of the research to what could be done to improve the collaboration. The other side focused on what could limit or disrupt the collaboration in the first phase of the two-phase model was with some exceptions not investigated. This could bring up other considerations that are important for the organization of the first phase and therefore research in the direction of obstacles to the collaboration in the two-phase model is recommended.

Fourthly, this study is mainly based on project that are still in the first phase of the two-phase model, and not many projects have been completed yet. Once sufficient two-phase model projects have been completed, it is recommended to perform more research on the collaboration within the two-phase model. This study could specifically further expand on the working practices and principles as identified in this study. This will further strengthen the findings of this study, as they have been gathered mainly from experiences of the practioners.

It should also be noted that the working practices were divided into principles by the researcher. While this was done carefully and the working practices could be divided by looking at the literature or logical thinking this also meant that the influence of the working practice on the principle was calculated, and not the direct relation of the working practice to the collaboration. If this would have been the case results could have been different, however the average importance of the working practice to the principle was high, this indicates that the practioners agree with the categorization.

The principles that have been labelled as most important by the practioners can be seen as quite general. Why these principles have been chosen by the practioners as most important did not fit within the scope of this thesis. A more in-depth review on the principles and the reason of their importance can be performed. Finally, the focus on collaborative identity in the research also meant that the part of collaboration that was investigated, was for the most part focussed on the soft aspects.

A lack of scientific, published research on Bouwteams and two-phase models in the Netherlands was identified during the literature study. As a multitude of theses have done research into this topic and it is used increasingly by the construction market nowadays research in the direction of collaboration in Bouwteams should be performed.

Furthermore, as the focus group could not agree fully on the implementation of a team assessment the implementation of team assessments could be researched more in depth. Limbergen (2020) already identified the motives of the client for using the team assessment, however the perspective of the contractor on the team assessment is still unclear.

Finally, the importance of collaborative identity to the two-phase model was researched. As the concept of collaborative identity is only based on two other research projects more research in the direction of a collaborative identity is needed. This study concludes that the collaborative identity is important, and suggestions can be derived on which activities should be organized to form such an identity. However, from the conceptual model and the definition as presented in this chapter, more research is needed on how a collaborative identity is formed, and for which other projects it can be beneficial.

9 Conclusion

The goal of this chapter is to answer the main research question and thereby conclude the thesis. After answering the main question some practical implications are discussed. Answering the main research question is done by subsequently answering the sub-questions. After the sub-questions are answered the main questions is answered.

9.1 Setting the context

SQ1: How can collaborative identity be operationalized?

Collaborative identity is a combination of values, principles and working practices. Defining collaborative identity is not clearly done yet in literature. In this research two definitions are proposed, the narrow and the wide definition. In the narrow definition the concept of a shared identity, the feeling of 'us,' becoming one organization is introduced as the narrow definition. The wider definition is defined as:

"Identity within the project that distinguishes the organization and contributes to a collaborative mindset in the project organization."

The definition from literature only shows aspects that relate to collaborative identity. Therefore, a conceptual model was built on how these specific aspects (Values, Principles and working practices) relate to each other. From the literature review it is concluded that values are part of the overall collaboration and that an increase in these values (e.g., Honesty, trust) increases the quality of the collaboration. The collaborative principles are action-guided rules that are important to collaboration (e.g., There is a common vision). These principles can be implemented using specific working practices (e.g., Make use of open book accounting). Working practices are the way work is usually done in an organization. So, collaborative identity can be operationalized by implementing principles using the working practices.

SQ2: How is the two-phase model conceptualized in the Dutch construction industry?

The two-phase model should not be seen as a specific contract. The two-phase model is a broad concept which can be used in multiple relational project delivery models. The two-phase model is defined as:

"An agreement in which the Client combines the design phase and first right to execution after a clear go/no go negotiation moment"*

The two-phase model is conceptualized in multiple forms. The two-phase model is often offered in a specific contractual form such as the bouwteam or the alliance and is offered in a tailored made form (Clemens, 2021). The tailor-made two-phase models can be distinguished on freedom of the design and integration of the collaboration.

The two-phase models differ from the traditional model as price agreements are adaptive; the creation of social added value is central; risk and information are discussed after the tender; financial relationship is based on trust and transparancy and fair forecasts are created in the first phase.

9.2 Defining the research parameters

SQ3: Which collaborative- principles and working practices from collaborative project delivery models lead to an improved collaboration?

This research indicated that the collaboration in the first phase of the two-phase model can be improved trough implementing certain collaborative principles. A list of fourteen principles was compiled which from different relational contracts including the Alliance, Early contractor, bouwteam and Collaborative identity theory. According to this literature study these principles are considered to be of importance for the collaboration in these relational contracts.

Furthermore, a list of working practices to implement these principles is compiled. A total of sixty-four working practices was gathered from literature (see table 5-3). The working practices are divided over the specific principles. If the working practices are used in projects the principles are argued to be reached. These working practices are however of general importance to Collaborative project delivery models and not specific to the two-phase model.

9.3 Gathering empirical information

SQ4: Which working practices and principles lead to an improved collaboration in the first phase of the two-phase model?

After identifying the principles and working practices, they were shared with the practicioners of two-phase models. The practioners ranked the principles on their importance leading to an average ranking on the principles. The working practices are also rated on importance to the implementation of the principle by the practioners. This led to a conceptual framework on how to organize the first phase. The framework (figure 9-1; appendix C12) shows which working practices should be implemented to reach the principles that are most important to the collaboration in the first phase of the two-phase model according to the survey and can therefore be considered to lead to an improved collaboration.

SQ5: How are the suggestions being received by practicioners of the two-phase model?

The suggestions proposed in the framework were in general recognized by the participant as important for the collaboration. The practioners already concluded that the collaboration in the first phase was especially important to the success of a project in the survey. The principles were also recognized to be of importance, by the practioners in the focus group.

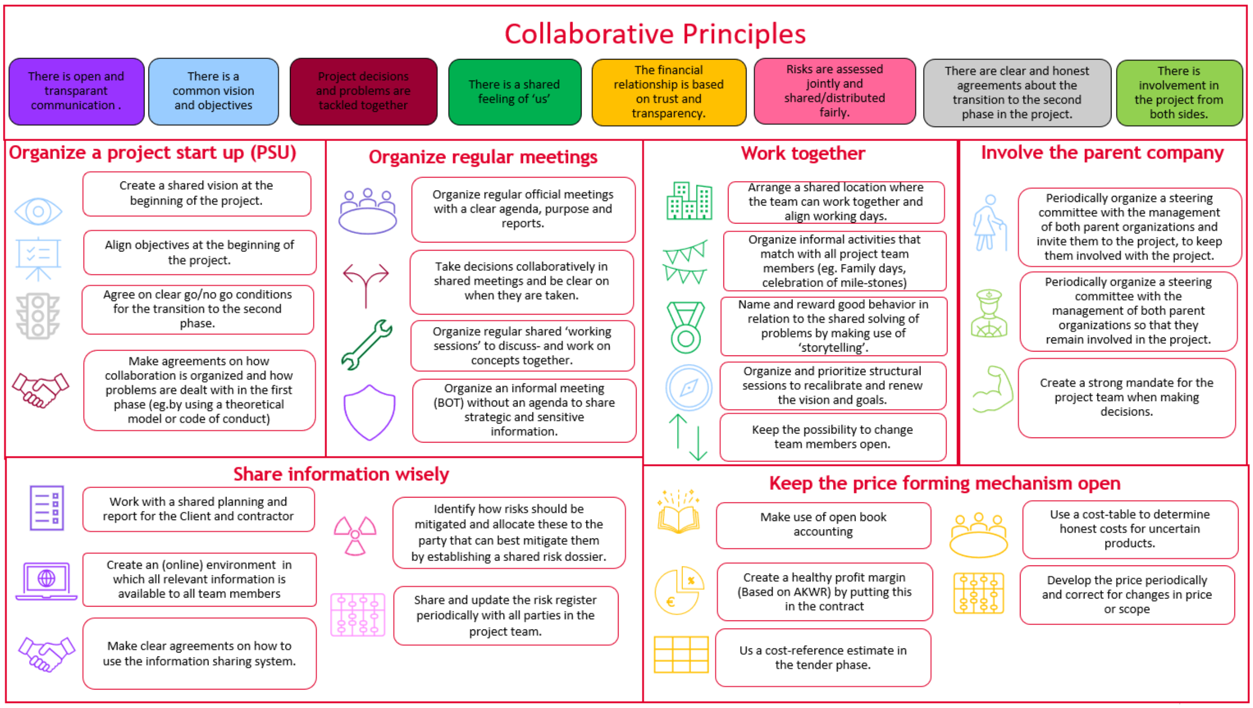

Figure 9-1 Final Framework

SQ6: What is the importance of a collaborative identity in the first phase?

A collaborative identity can be concluded to be of importance for the first phase. To create one identity can be beneficial in engaging external parties. Furthermore, working with the same values and principles is important for the project. The creation of an integral team was considered to be of high importance which further supports the importance of a collaborative identity. A significant amount of the working practices from the framework contribute to the formation of a collaborative identity. They either can be traced back to the collaborative identity theory or by analyzing them it can be concluded to relate to this. During the conversations in the focus groups, it was clear that a sense of togetherness, the we-feeling or reasoning on best-for-project basis was important, even if a more traditional contractual basis such as the integrated contract was chosen.

9.4 The main research question

How could the first phase of the two-phase model in infrastructure projects in the Netherlands be organized to improve collaboration and how does the formation of a collaborative identity contribute?

From the sub questions the main research question can be answered. To improve the collaboration in the first phase the framework as shown in figure 9-1 should be used. The framework shows the most important working practices that lead to implementing the most important principles for a successful collaboration in the first phase of the two-phase model.

From the principles it can be concluded that constructing a shared project vision and shared objectives is considered to be of importance for the collaboration. While the vision and objectives of the different organizations will still differ due to the difference in organizations a focus on sharing the different interests is important. The project team should at the beginning of the first phase collaboratively come to shared goals and a shared vision for the project. Effort should be made to find these shared objectives to create a sense of togetherness, striving towards the same goals. These objectives and vision should be continuously used in the project to asses decisions, and the collaboration in the project. Constructing such a shared objective and vision is specifically important for the two-phase model, as the two organizations need to collaboratively come to a final product and price at the end of the first phase.

Secondly from the principles and working practices it is found that attitude and behavior of the team members is an important aspect to the collaboration. Related to the collaborative identity these attitudes and behaviors should be formalized in an agreement between parties how the collaboration is done in the project. These attitudes and behaviors should be rewarded by sharing good examples. These attitudes and behaviors can be supported by clear agreements on communication, the solving of problems, clear agreements on the no/go moment and the financial structure of the project, as found in the framework. However, the willingness of theme members to think in a best-for project attitude is necessary, and these ‘hard’ factors do not guarantee the collaborative mindset by themselves. It should be noted that attitude and behavior can be considered of importance in most projects, however these collaborative attitudes and behaviors can specifically be implemented in the first phase as the set-up can be done in such a way that the traditional client vs contractor behavior is not necessary.

To ensure a collaborative mindset the project team should regularly work together on one location in an integrated team. This means that double roles should in general be avoided to strengthen the integration of the project team. Informal activities matched to the project team, to maximize participation could be organized to strengthen this feeling of togetherness.

Thirdly, meetings should be divided into different types. Three types of meetings were identified: Work sessions, Informal meetings and official meetings. The work sessions should be used to work on the design and other conceptual documents together. Official meetings should be used to make decisions. A clear agenda, purpose and reporting is necessary for these official meetings. It should be clear to project team members when which decisions are taken. Informal meetings should be used to discuss strategic and sensitive information without an agenda.

Finally, as a large part of the first phase is the price forming process, a specific focus is put on this aspect. Using fixed price elements in the tender should be avoided, as this limits the freedom of the contractor and client to come to an optimal solution during the first phase. Instead of asking for these fixed price elements the client should provide a cost-reference estimate. The price should be developed periodically and corrected for changes in scope and risks. Furthermore, a culture of transparancy and trust should be created around the financial relationship. This can be done by implementing open book accounting and using a cost table to determine honest prices. To take away the discussion of profit, a healthy profit margin should be part of the contract.

The formation of a collaborative identity can be concluded to be of importance for the first phase. To create one identity can be beneficial in engaging external parties. Furthermore, working with the same values and principles is important for the project. The creation of an integral team is considered to be of high importance which further supports the importance of a collaborative identity. A significant amount of the working practices from the framework contribute to the formation of a collaborative identity. They either can be traced back to the collaborative identity theory or by analysing them. During the conversations in the focus groups, it was clear that a sense of togetherness, the we-feeling or reasoning on best-for-project basis was important, even if a more traditional contractual basis such as the integrated contract (UAV-IC) was chosen.

9.5 Practical implications

- Firstly, the framework as constructed should be applied to the organization of the first phase. For each project, the specific operationalization of the proposed working practices can be tailored to the specific context and product of the projects. The framework should however not be seen as a guarantee to successful collaboration. The success of the collaboration comes with the effort of team members to invest into the collaboration. Collaboration should be part of the project goals and carefully monitored and maintained.
- As the two-phase model requires a first phase in which the price and design are adaptive: awarding criteria should be based for the most part on quality, the price component in relation to open book method. Qualitive criteria could include a team assessment, as the collaboration in the first phase is very important and key individuals should be able to work with each other.
- As uncertainty can arise due to the postponed awarding of the execution and only the first right is given in the tender, clear go/ no-go requirements in the tender documents should be present.
- Organize an elaborate project start up in the first phase, to create a shared vision, align goals and identify the different interests of the parent organization. This is important as one of the biggest challenges in the first phase is to collaborate with a different organization in a joint effort to come to a design. Agreements on how the collaboration is organized using a code of conduct or a theoretical model is advised as this help in evaluating the collaboration with the team. The PSU is only the start of the collaboration however, the vision, goals and collaboration should be an active project goal.
- Implement an informal meeting (a BOT-meeting) and focus on building a strong integrated project team by working together on one location and organizing informal activities. Sharing best practices and good behavioural examples trough story telling is advised to further grow the way collaboration is done. This is especially important for the two-phase model, as the two organizations need to work together to come to a shared product and price.
- Working collaborative with one integrated system can be challenging, therefore clear agreements should be made on sharing of information, risks registers and a joint planning. Vital for the collaboration is the agreement on how these shared documents are used. Supported by a clear structure of official, work related and informal meetings.
- Furthermore, the parent company should be regularly updated on the project and should be included in the vision and principles of the two-phase model. As the two-phase model is still new and parental organizations, might need to get used to the 'new' way of working. If unavoidable conflicts arise due to interests from the parent companies' organization these should be shared within the team and dealt with together.
- In the price forming procedure the price should be constructed using open book. As with the two-phase model the possibility to change the design should still be present after the awarding of the first

phase. Keeping freedom in price is beneficial for both the contractor and the client as scope changes or changes due to unforeseen risks can still be dealt with appropriately in the first phase. To gain sufficient trust with the parent organisation, or to comply with European tender standards it might be necessary to include more price components to the tender stage. A healthy profit margin is than advised combined with a general cost-estimate.

- Finally, the right people should be put in the teams, as the collaboration between client and contractor is very important in the first phase, and old/traditional behaviour can disrupt the collaborative process in the first phase team members should be able to collaborate in this ‘new’ way or be open to change or adapt towards this shared approach.

References

Bakker, R.M., 2010. Taking stock of temporary organizational forms: a systematic review and research agenda. *International journal of management reviews*, 12 (4), 466–486.

Bouwend Nederland. (2019, July). Gefaseerd Contracteren. Pianoo. https://www.pianoo.nl/sites/default/files/media/documents/Handreiking%20gefaseerd%20aanbesteden-juli2019.pdf

Brandt, P., Helfert, M., Auinger, A., & Gaubinger, K. (2015). Conducting focus group research in a design science project: Application in developing a process model for the front end of innovation. An International Journal on Information Technology, 9(1), 26–55. https://www.sysiac.org/uploads/SySiAc2015-BrandtnerEtal.pdf

Brinkman, P. (2020, February). Het 'twee-fasen proces - De aanbestedingsrechtelijke houdbaarheid van het twee-fasen-proces zoals voorgesteld door Rijkswaterstaat. *Vrije Universiteit Amsterdam*.

Chao-Duivis, M. A. B., Koning, A. Z. R., Ubink, A. M., & Bruggeman, E. M. (2018). A Practical Guide to Dutch Building Contracts. *Instituut voor Bouwrecht*.

Chen, G., Zhang, G., Xie, Y. M., & Jin, X. H. (2012). Overview of alliancing research and practice in the construction industry. *Architectural Engineering and Design Management*, 8(2), 103-119.

Consultancy.nl. (2019, July 30). McKinsey: Ingrijpen hard nodig in publieke infrastructuursector. Consultancy. Https://www.consultancy.nl/nieuws/24324/mckinsey-ingrijpen- hard-nodig-in-publieke-infrastructuursector

De Man, A. P., Roijen, E., Franken, L., & Hinsevel, M. (2015, maart). Samenwerking visie uit de theorie en de praktijk. COB. Https://www.cob.nl/wp-content/uploads/2018/01/COB-cahier_Samenwerking_20150326_150dpi.pdf

Denyer, D., Tranfield, D., & Van Aken, J. E. (2008). Developing Design Propositions through Research Synthesis. Organization Studies, 29(3), 393–413. Https://doi.org/10.1177/0170840607088020

Dhonr, S. (2021). Improving client-contractor collaboration during the transition from the Bouwteam phase into the execution phase in a Bouwteam project (Master thesis) | TU Delft. Repository Tu Delft. https://repository.tudelft.nl/islandora/object/uuid:54da4308-d963-467c-942a-da1a3c11263f?collection=education

Duurzaamgebouwd. (2020, 1 oktober). Nieuwe handreiking tweefasenaanbesteden op komst. Duurzaam Gebouwd. https://www.duurzaamgebouwd.nl/artikel/20200922-nieuwe-handreiking-tweefasenaanbesteden-op-komst ed.). *Eleven International Publishing.*

Engebø, A., Lædre, O., Young, B., Larssen, P. F., Lohne, J., & Klakegg, O. J. (2020). Collaborative project delivery methods: A scoping review. *Journal of Engineering and Management,* 26(3), 278–303. https://doi.org/10.3846/jcem.2020.12186

Erasmus university. (n.d.). LibGuides: *Doing the literature review: Types of literature review*. Erasmus University Library. Retrieved February 17, 2022, from https://libguides.eur.nl/informationskillslitreview/type

Eriksson, P. E., & Westerberg, M. (2011). Effects of cooperative procurement procedures on construction project performance: A conceptual framework. *International Journal of Project Management*, 29(2), 197–208. https://doi.org/10.1016/j.ijproman.2010.01.003

Fijneman, J. (2020, November). Handreiking “aanbesteden van twee fasen contracten.” CROW.

Hardy, C. and N. Phillips. 1998. ‘Strategies of Engagement: Lessons from the Critical Examination of Collaboration and Conflict in an Interorganizational Domain.’ *Organization Studies 9*(2):217–230.

Hevner, A., & Chatterjee, S. (2010). Design Research in Information Systems: Theory and Practice (Integrated Series in Information Systems, 22) (2010th ed.). Springer.

Hevner, Alan R. (2005) "A Three Cycle View of Design Science Research," *Scandinavian Journal of Information Systems*: Vol. 19: Iss. 2, Article 4.

Hietajärvi, A.M. (2017). Capabilities for managing project alliances [Dissertation, University of Oulo] http://jultika.oulu.fi/files/isbn9789526215402.pdf

Hietajärvi, A. M., & Aaltonen, K. (2018). The formation of a collaborative project identity in an infrastructure alliance project. *Construction Management and Economics*, 36(1), 1–21. https://doi.org/10.1080/01446193.2017.1315149

Himmelman, A.T. 2002. Collaboration for a Change: Definitions, Decision-Making Models, Roles, and Collaboration process Guide. Minneapolis: Himmelman Consulting.

Hosseini, A., Haddadi, A., Andersen, B., Olsson, N., & Lædre, O. (2017). Relational base contracts – Needs and trends in Northern Europe. *Procedia Computer Science*, 121, 1088–1095. https://doi.org/10.1016/j.procs.2017.11.139

Iivari, J. (2015). Distinguishing and contrasting two strategies for design science research. European Journal of Information Systems, 24(1), 107–115. https://doi.org/10.1057/ejis.2013.35 Involvement." Built Environment Project and Asset Management 2(2): 1-1. *International Journal on Information Technology*, *9*(1), 26–55.

Laan, A., Noorderhaven, N., Voordijk, H., & Dewulf, G. (2011). Building trust in construction partnering projects: An exploratory case-study. *Journal of purchasing and supply management*, 17(2), 98-108.

Lawrence, T. B., Phillips, N., & Hardy, C. (1999). The cult of collaboration in public policy. *The Journal of Applied Behavioral Science*, 35(4), 479–502. https://doi.org/10.1177/0021886399354008

Lighthart, C. (2021). Collaborative identity in project alliances: improving collaboration through collaborative identity formation (Master thesis). TU Delft. http://resolver.tudelft.nl/uuid:6377ff43-78c3-4afa-bdc2-a65d0a90860f

Limbergen van, K. (2020). Assessing collaborative behaviour as partner selection mechanism. (Master thesis). Tu Delft. http://resolver.tudelft.nl/uuid:f6a24890-0972-40ac-b489-7ed90c3a5ebb

Marktvisie. (2016). Marktvisie.Nu. https://www.marktvisie.nu/wp-content/uploads/2016/12/De-Marktvisie-1.pdf

Matinheikki, J., Aaltonen, K., & Walker, D. (2019). Politics, public servants, and profits: Institutional complexity and temporary hybridization in a public infrastructure alliance project. International *Journal of Project Management*, 37(2), 298–317. https://doi.org/10.1016/j.ijproman.2018.07.004

Mattessich, P. W., Monsey, B. R., Center, W. R., & Amherst H. Wilder Foundation. (1992). Collaboration: What Makes It Work- A Review of Research Literature on Factors Influencing Successful Collaboration. Amherst H. Wilder Foundation.

Ministerie van Infrastructuur en Waterstaat. (2020-b, August 19). Inventarisatie ervaringen twee-fasenproces. Rijkswaterstaat. https://www.rijkswaterstaat.nl/nieuws/archief/2020/08/rijkswaterstaat-inventariseert-ervaringen-met-2-fasenproces-bij-projecten

Nader, A. (2019, July). Success factors to the client-contractor collaboration in the Dutch infrastructure sector (Master thesis). TU Delft.

Nagelkerke, M., & Dijke, J. (2020, May). Evaluatie 2-fasen proces. Rijkswaterstaat.

New Zealand Government procurement. (2019, October). Early Contractor Involvement Construction |ProcurementGuidelines.https://www.procurement.govt.nz/assets/procurement-property/documents/early-contractor-involvement-construction-procurement.pdf

O'Flynn, J. (2009). The Cult of Collaboration in Public Policy. *Australian Journal of Public Administration*, 68(1), 112–116. https://doi.org/10.1111/j.1467-8500.2009.00616.x

Pas van der, E. (2021). The 2-phased price determination process in Bouwteam projects in the Netherlands. (Master thesis). Tu Delft. https://repository.tudelft.nl/islandora/object/uuid%3A1c536476-8bcb-492d-b6a0-08e1f9512188?collection=education

Puusa, A., & Tolvanen, U. (2006). Organizational Identity and Trust. *Electronic Journal of Business* 102 *Ethics and Organization Studies*, *11*(2), 29–33. http://ejbo.jyu.fi/pdf/ejbo_vol11_no2_pages_29-33.pdf

Rahman, M., & Alhassan, A. (2012). A contractor's perception on early contractor involvement. Built *Environment Project and Asset Management*, 2(2), 217–233. https://doi.org/10.1108/20441241211280855

Rahmani, F., Khalfan, M. A., & Maqsood, T. (n.d.). How is the Early Contractor Involvement (ECI) being implemented within the Australian construction industry? Academia.Edu. https://www.academia.edu/3193512/How_is_the_Early_Contractor_Involvement_ECI_being_implemented_within_the_Australian_construction_industry?auto=citations&from=cover_page

Riggelen, R. van. (2019). Bouwteam: For more collaboration in the construction industry (Master thesis). Delft University of Technology. Retrieved from https://repository.tudelft.nl/islandora/object/

Rijkswaterstaat. (2019, May). Toekomstige Opgave Rijkswaterstaat: Perspectief op de uitdagingen en verbetermogelijkheden in de GWW-Sector. Https://www.rijksoverheid.nl/documenten/rapporten/2019/06/11/toekomstige-opgave-rijkswaterstaat

Rijkswaterstaat. (2020, March). Op Weg naar een vitale infrasector.

Ross, J. (2003, April). Introduction to project alliancing. In *Alliance Contracting Conference* (Vol. 30, pp. 1-42).

Rowlinson, S., Cheung, F. Y., Simons, R., & Rafferty, A. (2006). Alliancing in Australia—No-litigation contracts: A tautology?. *Journal of Professional Issues in Engineering Education and Practice,* 132(1), 77-81.

Storteboom, A., Wondimu, P., Lohne, J., & Lædre, O. (2017b). Best Value Procurement - The Practical Approach In The Netherlands. *Procedia Computer Science*, 121, 398–406. https://doi.org/10.1016/j.procs.2017.11.054

Suprapto, M. (2016). Collaborative Contracting in Projects | TU Delft Repositories. Repository TU-Delft. https://repository.tudelft.nl/islandora/object/uuid:8081fd15-7e16-4a05-bd6a-152c8fee2f94?collection=research

Suprapto, M., Bakker, H. L., & Mooi, H. G. (2015). Relational factors in owner–contractor collaboration: The mediating role of teamworking. *International Journal of Project Management*, 33(6), 1347–1363. https://doi.org/10.1016/j.ijproman.2015.03.015

Suprapto, M., Bakker, H. L., Mooi, H. G., & Hertogh, M. J. (2016). How do contract types and incentives matter to project performance? *International Journal of Project Management*, 34(6), 1071–1087. https://doi.org/10.1016/j.ijproman.2015.08.003

Suprapto, M., Bakker, H. L., Mooi, H. G., & Moree, W. (2015). Sorting out the essence of owner–contractor collaboration in capital project delivery. *International Journal of Project Management*, 33(3), 664–683. https://doi.org/10.1016/j.ijproman.2014.05.001

The Embassy of Good Science. (2021, March 25). Values and norms. Retrieved October 23, 2021, from https://embassy.science/wiki/Theme:B4f7b2e3-af61-4466-94dc-2504affab5a8

Tremblay, M. C., Hevner, A. R., & Berndt, D. J. (2010). The use of focus groups in design science

van Wijck, D. (2016, July). Early Contractor Involvement in the Netherlands: The potential of ECI in public construction projects. (Master thesis) Delft University of Technology. http://resolver.tudelft.nl/uuid:d72e722f-fd17-4645-8e5d-821ce5520f39

Verschuren, P., & Doorewaard, H. (2010). Designing a Research Project: Second Edition (2nd)

Wondimu, P. A., Hailemichael, E., Hosseini, A., Lohne, J., Torp, O., & Lædre, O. (2016). Success Factors for Early Contractor Involvement (ECI) in Public Infrastructure Projects. *Energy Procedia*, 96, 845–854. https://doi.org/10.1016/j.egypro.2016.09.146

Yeung, J. F., Chan, A. P., & Chan, D. W. (2007). The definition of alliancing in construction as a Wittgenstein family-resemblance concept. *International Journal of Project Management*, *25*(3), 219-231.

Appendixes

Appendix A: Two-phase models

A1: Awarding criteria used for the two-phase model

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Appendix B: Collaborative identity

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Appendix C: Empirical Results

C1: Benefits to the two-phase model

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C3: Distribution of collaborative principles

C4: Independent T-test for Principle difference between Contractor and Client

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C10: 'Working against' (2 or more participants)

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Appendix D: Focus group set-up

D1: Focus group questioning route

D2: Focus group minutes [Client]

D2: Focus group minutes [Contractor]

D3: Collaborative tool result [Client]

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Appendix E Survey

E1: invitation to the survey

E2: Online survey

Appendix A: Two-phase models

Appendix A1: Awarding criteria used for the two-phase model

In general criteria that are often used can be divided into criteria leading to a price indication and criteria that focus on quality.

Price Criterium

As the price indication is important for the selection phase there are a few possibilities to include criteria related to price (Chao-Duyvis, 2012; Fijneman, 2020). In appendix table A1 a full summary of the selection criteria on price is shown. The specific criteria are discussed individually, however a combination of criteria could also take place. A decision by the client should be made on how much the price is scored in the total of the tender and how much certainty or flexibility the client wants to keep open to be discussed in the first phase.

Besides the criteria that are based on price, criteria that focus on quality that are often used in two-phase tendering models are:

Opportunities

An opportunity dossier or specific opportunities are used in tender procedures to highlight specific important criteria such as Circularity, limitation of Nuisance or sustainability (Fijneman, 2020). Difficulties arise with this criterium when the design is unclear. Therefore, it is important in the case of an unclear design that the contractor clarifies which steps will be taken to ensure that the opportunities are ensured.

A different method is to ask for an opportunity-dossier. In an opportunity dossier the contractor is asked to prioritize the most important opportunities and indicate how they will implement these opportunities. This method helps in scoring the understanding of the project of the contractor (Fijneman, 2020).

Risk-Dossier

As the Two-phase model intends to lower the risk on the project a risk dossier is almost a fixed criterium. A risk dossier should be made for the design and execution phase (as far possible) of the project. This criterium shows the understanding from the contractor of the task at hand (Fijneman, 2020)

Collaboration/Method Plan

As a big part of the agreement is working together on the design/optimization of the project a collaboration assessment (Limbergen,2020) or plan for collaboration is often included in the tender requirements of the two-phase model (Fijneman, 2020). As a smooth collaboration between the contractor and client in this phase is seen as one of the added values of the two-phase model (Bouwend Nederland, 2019)

Team Design/ Persons

Collaboration is not conducted between organizations but between persons. Therefore, an acquaintance of the team members that intends to participate in the project is common in the tender phase of two-phase models (Fijneman, 2020). This is classically conducted in the form of a presentation or interview, but increasingly in the form of a conversation more structured as a construction meeting. There are two methods on how this can be deployed (Fijneman, 2020). The conversation can be supportive, meaning that the conversation takes place to further clarify the collaboration plans that have been submitted but is not scored independently. The conversation can also be an independent criterium, meaning that the key individuals show how they understand the assignment and show how the understand the desired way of working together.

Price criteria	Pro's	Cons
Fixed price for specific objects	-Easy and objective -Factual price on specific objects -Changes of strategic behavior small due to priced objects	-If the qualitive scores are close together, this component can become decisive for the selection.
Unit prices of materials and equipment	-Easy and objective -Prices and tariffs are created through direct market forces	-Strategic behavior can occur as quantities are not set. -Discussion can occur on the number of units.
Percentages based on general costs, profit and risks	-easy and objective -Less disruptive during the design phase as it also applies to the execution phase. -percentages are clear from the beginning and are created through direct market forces	-Percentages differ between larger and smaller companies and smaller companies are disadvantaged -A clear understanding on percentages does not yet create clearness on the total price. -Strategic tendering can lead to lower percentages and an urge to make up for this loss in the rest of the project.
Quality score on price and maximum budget (Price control methods)	-Small risk on strategic behavior and it is negative influence on collaboration -honest prices due to the transparency from the side of the contractor.	-No clarity on the prices at the tender moment, however a guarantee on maximum budget is made. -Prices can be higher because there is no direct competition on price.

Table A1: Full summary of pricing criteria used.

Appendix A2 Evaluation Two-fase model (Nagelkerke en Dijke, 2019)

Project -->	Nijkerkerbrug brug	Crib and bank lowering Pannerdens-Kanaal	Zuid-Willemsvaart	City Dikes Zwolle	Zuidasdok
Reason for 2-phase process	The initial goal was to improve Collaboration with the market and maximize customer value. 2) Additionally, a controlled execution and transfer.	(1) Retaining knowledge from plan elaboration in the realization phase and using implementation knowledge in the plan development phase (2) Making the risk of missing or incorrect area data and soil data more manageable (3) Designing and building with the lowest possible burden on people and nature.	Creating design freedom, by using a draft agreement at a high level of abstraction and a demand on outlines with the consequence of low transaction costs for the market as they were allowed to maintain a bandwidth for uncertain parts	A very complex and large project for the water board (strategic product) in which the best solution is not immediately available, in short, not a search for the best solution, but the search for a partner with whom the best solution is found.	Do not start with the execution before there is a feasible design.
Scope	Implementation design up to and including realization.	Plan elaboration up to and including realization.	Implementation design and realization.	Plan elaboration up to and including realization.	Design & realization (with part maintenance).
Pricing	Joint registration price determined upon award with a final recalibration price after engineering. Control by cost experts and quotation check subcontractors. In addition, choices were made in consultation with the client/director asset management.	Fixed price for the entire plan development phase (with the help of key process and conditioning studies, for which there was a Collaboration budget). For the realization phase, a price is jointly agreed based on open book and a selection of unit prices (discounted during the tender)	Fixed price for regular parts. Variable price based on low-probably-high system for uncertain parts, including process agreements to arrive at a final price.	Fully transparent and open budget, PU and Realization phase. Risks in PU phase mitigated, residual risks priced. Prices are settled based on (cost) prices at activity level (with auditor's report) with a 14% surcharge for AKW&R. And control of project by a cost table (cost experts OG -ON and independent)	Fixed contract price, after the recalibration phase, any VTW's could still be settled.
Degree of importance of price in selection	During the tender, price was not part of going from 3 to 1 lot. But if the intended ON and OG do not agree on the price, number 2 would get the assignment.	For the plan elaboration phase and realization phase, the price component was determined separately from each other and weighed simultaneously in EMVI-BPKV table (Economically Most Advantageous Tender with the Best Price-Quality Ratio).		0%, contractor submits a financial plan. For the financial component, the following documents had to be submitted to the tender: Financial plan: among other things consisting of key figures for important parts (cubic meters of sand, hourly rates, etc.) and rates plan study phase	20%
Moment of price formation	During the tender when selecting the intended contractor. Price could however be recalibrated after the engineering phase.	The pricing of the realization is therefore done based on 'dominant cost items' that were included in the entire tender price. The plan elaboration phase is priced during the tender and the realization during the plan development phase.	When awarding a fixed price for the regular parts and the uncertain parts are discounted based on low - probably - high systematics. Contractor makes after awarding an execution design, the price is on basis of the fixed price for realization and the exectution design determined.	Upon registration, the financial plan had to be submitted. During the planning phase, an estimate is made based on SSK.	In case of award and any recalibrated price based on settled VTW's after vo+.

Project -->	Nijkerkerbrug brug	Krib- and Oeververlaging Pannerdens Kanaal	Zuid-Willemsvaart	City dikes Zwolle	Zuidasdok
Risk allocation	Joint risk allocation	Client has named unwanted top events (OTG). The OTGs served as a framework for mapping the concrete risks by the contractor.	The market determined which risks fell outside the subscription price.	Joint risk allocation.	Client prescribes what client risks are and which risks the contractor must price himself.
Exit strategy	The exit is the number 2 in the tender selection if one would not agree.	Go/no-go decision based on three suspensive conditions for the realization phase (agreement price realization, MIRT3 decree Minister and Main Decrees irrevocable)	Procedure UAV-GC.	Ample termination possibilities during plan elaboration. During implementation phases, the UAV-GC applies.	Procedure UAV-GC: Cancellation can be done at any time by client with surrender of 1% before acceptance. Recalibration file and 3% surrender after acceptance. recalibration file on the then still too complete state of the work in accordance with the initial assignment sum.
Degree of design freedom	A lot of design freedom that is filled in together. Together, requirements are collected from stakeholders.	A lot of design freedom, but to keep a grip, starting points have been set for the working method, such as the way of excavating, the form of transport and distances to be handled.	After awarding the contract, the contractor made the implementation design in which the uncertainties and risks mentioned in the tender were reduced.	A lot of design freedom that is filled in together. Only 3 requirements. And the appointment of a committee of three "wise men" who look at whether the design is reasonable, to be able to make the price-quality assessment.	contractor had to submit a provisional design+ before building outside. In short, regular design process in which client tests what the contractor designs based on requirements etc.
Integration of teams and systems	One team, one integrated system for technology.	Two largely mirrored IPM teams, in one location. Planning and risks are controlled in a joint system. RWS has access to Relatics contractor.	Mirrored IPM teams and systems	One team and integrated systems including integrated project specific accounting system.	All key players in OG team had a counterpart at ON. The systems (e.g.,
Combination formation	Free combination formation	Free combination formation	Free combination formation	Free combination formation	Free combination formation

Appendix B: Working practices and Principles

Appendix B1: Working practices and Principles from Ligthart (2021)

Collaborative principles and working practices derived from Ligthart (2021)
Create mutual understanding
Create interdependence
Align Goals and identify Joint goals
Create a no-blame culture
Create Mutual support amongst team members
Setting out procedures as policy and guidance for identifying attributes of trust building behaviors
Invest time into each other
Create a shared feeling of us
Reflection and self-assessment
Design ways of working with multiple identities
Focus on joint effort for improving
Long term orientation for the duration of the whole two-phase project
Sharing information, knowledge and resources
Transparent, open and frequent communication
Joint risk-management
Joint decision making
Joint problem solving
Setting initial boundaries and identity claims for the project
Daring to express concerns about the new way of collaboration
Involving all parties within the team organization in establishing vision and goals
Create a shared vision
Engage (external) collaborators for the facilitation of the collaboration.
Create common attitude towards problem solving
Converge on mutual conceptions of the two-phase model, searching for principles and philosophy: Who are we becoming?
Design reward and control systems
Ensuring that regulatory demands are met
Setting out procedures with the team as policy and guidance for identifying attributes of trust
Schedule and maintain face-face contact
Create a shared location to work together
Enacting informal practices to reinforce the shared feeling of us (e.g., Celebrating milestones, team excursion, birthday celebration)
enaction formal practices to reinforce the shared feeling of us (e.g., Feedback sessions, small group coaching)
Creating external signs and a visual symbol
Converging on mutual conceptions of project alliancing as a team/ Searching for knowledge or alliance principles and philosophy (“who we are becoming”)
Ensure top management commitment
co-create routines

Clear definition of Roles and responsibilities (as part of the contract)
Clear definition of Roles and responsibilities (Not as part of the contract)
Clear coordination from management
Being positive
Make an inventory of existing routines
Cogitate and plan the next phases early
Create common attitude towards problem solving

Appendix B: Inclusion of Sources

Source	Reason for inclusion
(Ligthart, 2021)	Former thesis on collaborative identity, researched working practices and values in the alliance context
(Hietajärvi & Aaltonen, 2018)	Introduced the concept of a Collaborative identity and its importance to the alliance.
(Nagelkerke & Dijke,2020)	Thorough evaluation of RWS on previous (pilot) two-phase models in the Netherlands.
(Fijneman, 2020)	Guide document on two-phase tendering for the Dutch construction industry
Clements (2021)	Study on risk allocation in the two-phase model, concluded that collaboration is an important theme for the two-phase model.
(Yeung, Chan & Chan, 2007)	Definition of alliancing, hard and soft elements.
(Ross, 2013)	Introduction to project partnering, included lot of practices.
(Voordijk & Dewulf, 2011	Multi case analysis on building trust.
(Chen et al., 2012)	Overview of alliancing and partnering
(New Zealand Government procurement, 2019)	ECI in New Zealand, very similar to two-phase models.
(Rahmani, Khalfan &Maqsood, n.d.).	Early contractor involvement implementation in Australia
(Wondimu, 2016)	Success factors for ECI
(Rahman & Alhassan, 2012)	Contractors' perception on ECI
Van der pas, 2020	Elaborate study on price-forming in bouwteams. Concluded with a set of suggestions.
Dhonr, 2021	Analyzed the transition from the first phase to the second phase in bouwteam projects. Concluded multiple strategies for the collaboration founded on a large list of working practices.
Van Riggelen, 2019	Study on collaboration in the first phase of bouwteam models. Concluded multiple success factors for the first phase.
Limbergen (2020)	Study on the use of team assessments in the first phase. As the team-assessments came up quite regularly in the two-phase model evaluation this study was included.

Appendix B3: Working practices and principles found

	CI		2-phase			Alliance				ECI/Bouwteam								
Principles	(Ligthart, 2021)	(Hietajärvi & Aaltonen, 2018)	(Nagelkerke & Dijke,2020)	(Fijneman, 2020)	Clemens (2021)	(Yeung, et al., 2007)	(Ross, 2013)	(Voordijk & Dewulf, 2011	Chen, et al., (2012)	(NZGP,2019)	Rahmani et al., (n.d.)	(Wondimu, 2016	(Rahman & Alhassan, 2012)	Van der pas, 2020	Dhonr, 2021	Van Riggelen, 2019	Limbergen (2020)	#
There is a common vision and objectives.	**X**	**X**				**X**					**X**				**X**			**5**
Create a shared vision at the beginning of the project through a workshop/vision day.	X	X	X	X	X				X						X			7
Align objectives at the beginning of the project through a workshop/vision day.	X	X	X		X				X		X				X			7
Speak out about the interests of the parent organization in order to jointly arrive at a clear and comparable project vision.	X	X	X															3
Organize structural joint sessions to recalibrate and renew the vision and goals.															X			1
Involve an independent facilitator to create a shared vision and objectives.																X	X	2
Involve all stakeholders of the project in setting vision and goals.	**X**	**X**									**X**							**3**
Stakeholders are involved early in the process.										X	X	X	X					5
Planning, scope and performance targets are discussed through a dialogue with the contractor during the tendering phase.																		1
Perform a comprehensive project startup (PSU) at the beginning of the first phase of the collaboration.	X				X			X	X							X		6
When transitioning to the next phases, organize a project follow up (PFU).				X										X				2
Record a collaboration agreement jointly in a formal document.			X	X														2
Explain the philosophy of the two-phase model to the project team members at the beginning of the project and to new project team members.	X	X																2
Risks are assessed jointly and shared/distributed fairly.	**X**				**X**	**X**			**X**		**X**			**X**				**6**
Identify risks early during dialogue phase and tendering.			X		X								X	X				4
Organize joint risk assessment workshops in the first phase of the collaboration.			X		X		X				X		X					5
Allocate risks to the party that can best control and mitigate them by recording them in a risk register.			X		X	X						X		X				5
Share risks and rewards collectively by implementing a shared risk pot.	X		X	X	X	X		X	X									7
Periodically share and update a risk register that is shared with all parties within the project team.					X						X		X	X				4

Principles	CI		2-phase			Alliance				ECI/Bouwteam								#
	(Ligthart, 2021)	(Hietajärvi & Aaltonen, 2018)	(Nagelkerke & Dijke,2020)	(Fijneman, 2020)	Clemens (2021)	(Yeung, et al., 2007)	(Ross, 2013)	(Voordijk & Dewulf, 2011	Chen, et al., (2012)	(NZGP, 2019)	Rahmani et al., (n.d.)	(Wondimu, 2016	(Rahman & Alhassan, 2012)	Van der pas, 2020	Dhont, 2021	Van Riggelen, 2019	Limbergen (2020)	
There is open and transparent communication.	**X**						**X**		**X**	**X**	**X**		**X**					**6**
Organize an informal meeting without an agenda where sensitive information can be shared.									X		X		X					2
Work with a joint planning for client and contractor.	X															X		2
Organize an efficient meeting structure with fixed meetings, agendas and reports.															X			1
Create an (online) environment in which all relevant information is available to all team members	X								X	X	X					X		5
Project decisions and problems are tackled together.	**X**								**X**		**X**							**3**
Regularly organize joint meetings where decisions are made.	X															X		2
Reward and name good behavior in the team with regard to solving problems together.	X	X																2
Make agreements about solving problems together and discuss them in the team.			X	X		X		X	X						X		X	7
Conflicts are dealt with constructively.	**X**					**X**	**X**		**X**						**X**	**X**		**6**
For a timely settlement, give the handling of conflicts explicit space on the agenda of joint consultations.															X			1
Engage an external facilitator to facilitate the dispute resolution process.	X	X																2
Create a clear dispute resolution process.						X	X								X			3
Make agreements about the way in which (potential) conflict situations are handled and discuss these with the team.	X								X									2
There is a no blame culture.	**X**			**X**			**X**		**X**	**X**	**X**							**6**
Make shortcomings negotiable in the project start-up (PSU) by explicitly reserving time for this.	X				X		X											3
Periodically organize an anonymous evaluation of the collaboration in the team and discuss the results with each other.	X																	1
Set up the project team in such a way that there is equality in duties and roles between team members of both parties.	X							X	X						X	X		5
Reflect with the team regularly and identify and encourage situations that contribute to building trust.	X	X																2
Engage an external coach to facilitate the collaboration.	X	X									X					X		4

	CI		2-phase			Alliance				ECI/Bouwteam								
Principles	(Ligthart, 2021)	(Hietajärvi & Aaltonen, 2018)	(Nagelkerke & Dijke,2020)	(Fijneman, 2020)	Clemens (2021)	(Yeung, et al., 2007)	(Ross, 2013)	(Voordijk & Dewulf, 2011	Chen, et al., (2012)	(NZGP, 2019)	Rahmani et al., (n.d.)	(Wondimu, 2016	(Rahman & Alhassan, 2012)	Van der pas, 2020	Dhonr, 2021	Van Riggelen, 2019	Limbergen (2020)	#
There is a shared feeling of us.	**X**	**X**		**X**	**X**						**X**							**5**
Organize informal team building activities such as get-togethers, excursions or celebrating milestones.	X	X					X											3
Organize more formal team building activities such as coaching sessions and feedback sessions.	X	X									X							3
Create a joint 'brand', for example through a project website, a logo or joint stationery.	X	X					X											3
Create one integrated team, without double roles in contractor and client.	X					X	X	X	X		X							6
Make sure routines, such as working hours and meeting structures, are the same.	X																	1
Arrange a shared location where the project team can work together.	X	X					X									X		4
The contractor is selected on the basis of his collaboration competences.					**X**	**X**	**X**		**X**						**X**	**X**		**7**
Perform a collaboration assessment in the procurement phase.					X						X						X	4
Let the contractor draw up a collaboration plan as part of the tender phase.					X												X	3
Transfer the tender staff to the design phase.					X					X								2
Select individual team members based on collaboration competency.								X							X			2
0The financial relationship is based on trust and transparency.	**X**				**X**								**X**	**X**		**X**		**5**
Make use of open book accounting.				X	X				X	X	X	X	X	X				9
Create a healthy profit margin by recording it in the contract.				X						X								2
Include fixed price elements in the award criteria for elements such as hourly pay and machine usage.				X						X								2
Develop the price periodically and correct for changes in risk or scope.														X				1
Have the contractor make a detailed cost estimate during the tendering phase.			X										X	X				3
Make a joint cost estimate parallel to the development of the design in the 1st phase.														X		X		2
There is involvement in the project from both sides.	**X**		**X**	**X**			**X**											**4**
Set up a joint project management team.	X																	1
Periodically organize a steering committee with the management of both parent organizations, so that they remain involved in the project.	X			X		X	X			X	X		X					7
Create a strong mandate for the project team to have in making decisions.							X											1
Let the future owner and administrator be part of the project team.			X						X					X				3

	CI		2-phase			Alliance				ECI/Bouwteam									
Principles	(Ligthart, 2021)	(Hietajärvi & Aaltonen, 2018)	(Nagelkerke & Dijke,2020)	(Fijneman, 2020)	Clemens (2021)	(Yeung, et al., 2007)	(Ross, 2013)	(Voordijk & Dewulf, 2011	Chen, et al., (2012)	(NZGP, 2019)	Rahmani et al., (n.d.)	(Wondimu, 2016	(Rahman & Alhassan, 2012)	Van der pas, 2020	Dhonr, 2021	Van Riggelen, 2019	Limbergen (2020)	#
There is involvement in the project from both sides.	**X**		**X**	**X**			**X**											**4**
Set up a joint project management team.	X	X					X											1
Periodically organize a steering committee with the management of both parent organizations, so that they remain involved in the project.	X			X		X	X			X	X		X					7
Create a strong mandate for the project team to have in making decisions.							X											1
Let the future owner and administrator be part of the project team.			X						X					X				3
There are clear and honest agreements about the transition to the second phase in the project.			**X**	**X**	**X**					**X**			**X**	**X**	**X**			**7**
Make clear agreements about intellectual property in the design.			X	X														2
At the start of the first phase, agree on clear Go/no go conditions for the transition to the second phase.			X	X	X					X		X		X	X		x	8
Ensure proper compensation from the contractor in the event of an exit and include these agreements in the contract documents as well.			X	X	X									x				4
Organize a training or webinar on the two-phase model at the start of the project.	X		X	X														3
There is a focus on implementing improvement in the project	**X**	**X**				**X**												**3**
Engage external expertise in inexperienced areas in the design phase.				X												X		2
Periodically evaluate the collaboration within the project with the whole team in an open consultation.															X	X		2
Organize knowledge sessions in which team members share knowledge among themselves.											X				X			2
Add financial incentives in the contract for achieving project objectives.	X	X				X												3
Attention is paid to achieving the planning goals											**X**			**X**				**3**
In the tender, ask for a clear planning for the first phase.	X		X								X							3
Monitor and recalibrate the planning periodically throughout the project.			X															1
Reward the achievement of the planning with financial incentives.														X				2
Make a joint planning for the first and second phases.	X										X			X				4

Appendix B4: Rewording and change of principles

Principle found	Reason for change	New principle
There is a common vision and objectives	No change	**There is a common vision and objectives.**
All stakeholders are involved early in the process	No change	**Involve all stakeholders of the project in setting vision and goals.**
Risks are divided equally and assessed jointly	No change	**Risks are assessed jointly and shared/distributed fairly.**
Open, frequent and transparent communication between contractor and client.	Rewording to make it similar	**There is open and transparent communication.**
Project decisions are taken collectively and unanimously	No change	**Project decisions and problems are tackled together.**
The dispute resolution process is clear.	Broader theme is important	**Conflicts are dealt with constructively.**
Create a no-blame culture	Principles is not an action, a goal	**There is a no blame culture.**
A shared feeling of us.	Similarity	**There is a shared feeling of us.**
Partners are selected on its team working competence.	Partners is too vague, this most of the time relates to the contractor	**The contractor is selected on the basis of his Collaboration competences.**
Financial relationship between contractor and client is based on trust and transparancy	Contractor and client is implied	**The financial relationship is based on trust and transparency.**
Contractor and Client Commitment to the project	Shorter, contractor and client is implied	**There is involvement in the project from both sides.**
Long term orientation for the duration of the whole two-phase model project.	To vague	**There are clear and honest agreements about the transition to the second phase in the project.**
Focus on a joint effort for improvement	To vague	**There is a focus on implementing improvement in the project**
Attention is paid to achieving the planning goals	No change, added due to suggestion of the supervisor	**Attention is paid to achieving the planning goals**
Extensive project start up is conducted	Added to involvement early in the process	**~~Extensive project start up is conducted~~**
Time is invested into each other	Added to Shared feeling of us	**~~Time is invested into each other~~**
Senior management commitment and trust	Added to involvement in the project	**~~Senior management commitment and trust~~**
A culture of collaboration.	Added to shared feeling of us	**~~A culture of collaboration.~~**
Information, knowledge and resources are shared.	Added to open, frequent and transparent communication	**~~Information, knowledge and resources are shared.~~**
Leave room in the design for innovation	Added to improvement in the project	**~~Leave room in the design for innovation~~**
Capability	Adde to improvement in the project	**~~Capability~~**

Appendix B5: Rewording and change of working practices

Working practice	Reason for change	New
A. Joint vision and Goals are created		**There is a common vision and objectives.**
Create a shared vision	Operationalization	Create a shared vision at the beginning of the project through a workshop/vision day.
Align objectives	Operationalization	Align objectives at the beginning of the project through a workshop/vision day.
Speak out about each other's interests and objectives to jointly come to a clear and similar project vision.	Rewording to make it clearer	Speak out about the interests of the parent organization in order to jointly arrive at a clear and comparable project vision.
Create a win-win situation	Goal of the two-phase model, not a wp	
Organize joint sessions related to the content	Content is further specified	Organize structural joint sessions to recalibrate and renew the vision and goals.
Independent facilitator helps in establishing vision and goals	Operationalization	Involve an independent facilitator to create a shared vision and objectives.
B. All stakeholders are involved early in the process		**Involve all stakeholders of the project in setting vision and goals.**
x	Added because of change in principle	Stakeholders are involved early in the process.
Individual dialogue with contractors	addition includes other tender mechanisms like negotiation and competition	Planning, scope and performance targets are discussed through a dialogue with the contractor during the tendering phase.
Conduct an extensive project start up (PSU)	Time indication added	Perform a comprehensive project startup (PSU) at the beginning of the first phase of the collaboration.
Document agreements together in a collaboration plan on how to collaborate, and especially expectations within the team and as individuals	To vague	Record a collaboration agreement jointly in a formal document.
The concept of two-phase model related to traditional collaboration is explained clearly at the start of the project	New team-members should also understand this	Explain the philosophy of the two-phase model to the project team members at the beginning of the project and to new project team members.
Organize project follow up sessions	Specification	When transitioning to the next phases, organize a project follow up (PFU).
Determine the performance targets and commercial arrangements on a negotiation basis or on a competition basis during the tendering phase.	included in dialogue	
organize a kick-off at the beginning the project with all team members.	Found in PSU	
Use DiSC management profiles and communicate these to establish roles by analyzing team members at the start of the Bouwteam project	To specific	
C. Risks are divided equally and assessed jointly		**Risks are assessed jointly and shared/distributed fairly.**
-Shared risk pot	added to collectively sharing risks	
-Make a risk register that is shared with all actors	Add periodically share and update	Periodically share and update a risk register that is shared with all parties within the project team.
-Collaborative risk management	To vague	
Share risks and rewards collectively	Add risk pot	Share risks and rewards collectively by implementing a shared risk pot.
Risks are manageable for and distributed to the party that can mitigate them	specification	Allocate risks to the party that can best control and mitigate them by recording them in a risk register.
Joint risk assesment workshops in the design phase	specific to two-phase	Organize joint risk assessment workshops in the first phase of the collaboration.
Continuous risk management	found in share and update a risk register	
Early risk identification	specification	Identify risks early during dialogue phase and tendering.
There is open and transparent communication.		**There is open and transparent communication.**
Joint planning with all actors	making it active	Work with a joint planning for client and contractor.

Organize an efficient meeting structure dependent on the nature of the project (e.g., complexity, size), commonalities and subject of the meeting.	Shorter	Organize an efficient meeting structure with fixed meetings, agendas and reports.
Information, knowledge and resources are shared.	to general, same as principle	
Share sensitive information	To broad, sharing knowledge for innovation, sharing resources also innovation, information sharing already found in other wp	Organize an informal meeting without an agenda where sensitive information can be shared.
Create an environment in which information, that meets quality requirements, is openly available for all team members	Specification	Create an (online) environment in which all relevant information is available to all team members
Involving all parties within the team organization in establishing vision and goals	found in common vision and objectives already	x
F. Project decisions are taken collectively and unanimously		**Project decisions and problems are tackled together.**
Regular meetings where decisions are taken	making it active	Regularly organize joint meetings where decisions are made.
Create common attitude towards problem solving	Operationalization	Reward and name good behavior in the team with regard to solving problems together.
Joint problem solving	Operationalization	Make agreements about solving problems together and discuss them in the team.
Conflicts are dealt with constructively.		**Conflicts are dealt with constructively.**
Resolve conflicts and disputes internally	Operationalization	For a timely settlement, give the handling of conflicts explicit space on the agenda of joint consultations.
External facilitator for dispute resolution	making it active	Engage an external facilitator to facilitate the dispute resolution process.
The dispute resolution process is clear.	making it active	Create a clear dispute resolution process.
Agree not to litigate or arbitrate	To suggestive	Make agreements about the way in which (potential) conflict situations are handled and discuss these with the team.
There is a no blame culture.		**There is a no blame culture.**
Engage (external) collaborators for the facilitation of the collaboration.	Coach is clearer	Engage an external coach to facilitate the collaboration.
Create insight in each other's shortcomings	Specification	Make shortcomings negotiable in the project start-up (PSU) by explicitly reserving time for this.
Daring to express concerns about the new way of collaboration	Operationalization	Periodically organize an anonymous evaluation of the collaboration in the team and discuss the results with each other.
Strive for equality in behavior and duties	Operationalization	Set up the project team in such a way that there is equality in duties and roles between team members of both parties.
Setting out procedures with the team as policy and guidance for identifying attributes of trust	Operationalization	Reflect with the team regularly and identify and encourage situations that contribute to building trust.
There is a shared feeling of us.		**There is a shared feeling of us.**
Enacting informal practices to reinforce the shared feeling of us (e.g., Celebrating milestones, team excursion, birthday celebration)	Operationalization	Organize informal team building activities such as get-togethers, excursions or celebrating milestones.
enaction formal practices to reinforce the shared feeling of us (e.g., Feedback sessions, small group coaching)	Operationalization	Organize more formal team building activities such as coaching sessions and feedback sessions.
Creating external signs and a visual symbol	Operationalization	Create a joint 'brand', for example through a project website, a logo or joint stationery.
Deliver the project by one integrate no duplications of functions and roles of team.	Operationalization	Create one integrated team, without double roles in contractor and client.
co-create routines	Operationalization	Make sure routines, such as working hours and meeting structures, are the same.
Create a shared location to work together	Operationalization	Arrange a shared location where the project team can work together.
Schedule and maintain face-face contact	Deleted, as this will be accomplished by the other wp's	
L. Contractor is selected on its team working competence.		**The contractor is selected on the basis of his collaboration competences.**

Team working assessment in the tender phase	Clearer	Perform a collaboration assessment in the procurement phase.
Request a plan of collaboration from the contractor in the tender phase	Clearer	Let the contractor draw up a collaboration plan as part of the tender phase.
Bring over tender staff to design phase	Clearer	Transfer the tender staff to the design phase.
Team members are selected based on team working competence.	Clearer	Select individual team members based on collaboration competency.
H. Financial relationship between contractor and client is based on trust and transparancy		**The financial relationship is based on trust and transparency.**
Implement a system of open book accounting	Common language	Make use of open book accounting.
Consider fixed pricing elements in the awarding criteria	Operationalization	Include fixed price elements in the award criteria for elements such as hourly pay and machine usage.
Create a healthy profit margin	Operationalization	Create a healthy profit margin by recording it in the contract.
continuous development of risk adjusted price	Operationalization	Develop the price periodically and correct for changes in risk or scope.
Early cost estimation by the contractor	Clearer, cost estimate is always made	Have the contractor make a detailed cost estimate during the tendering phase.
Cost estimate parallel to the development of the design	making it active	Make a joint cost estimate parallel to the development of the design in the 1st phase.
Percentages based of materials and equipment	To specific	x
Unit prices of materials and equipment	To specific	x
Fixed prices for specific object	To specific	x
Quality score on price and maximum budget	To specific	x
Design reward and control systems	To vague	x
There is involvement in the project from both sides.		**There is involvement in the project from both sides.**
Owner is part of the project team	Also the administrator	Let the future owner and administrator be part of the project team.
Create a joint leadership team	4	Set up a joint project management team.
Project team should have a strong mandate in making decisions	3	Create a strong mandate for the project team to have in making decisions.
Senior management commitment to the two-phase model	2	Periodically organize a steering committee with the management of both parent organizations, so that they remain involved in the project.
Ensure top management commitment	Done by implementing the steering committee	
Develop the project proposal by team members with the owner's collaboration and involvement	already included in other wp's	
Ensure strong leadership commitment	found in senior management commitment	
There are clear and honest agreements about the transition to the second phase in the project.		**There are clear and honest agreements about the transition to the second phase in the project.**
Go/no go conditions should be clear (Intellectual property)	Intellectual property should be discussed separately	Make clear agreements about intellectual property in the design.
		At the start of the first phase, agree on clear Go/no go conditions for the transition to the second phase.
Converge on mutual conceptions of the two-phase model.		Organize a training or webinar on the two-phase model at the start of the project.
Contractor is properly compensated in case of an exit		Ensure proper compensation from the contractor in the event of an exit and include these agreements in the contract documents as well.
Development of close personal friendships that endure beyond the project.	To vague found in shared feeling of us	x
Contractors track record in terms of innovation	does not actually contribute to transition	x
Create interdependence	To vague	x
Create one integrated team	Found in shared feeling of us	x
There is a focus on implementing improvement in the project		**There is a focus on implementing improvement in the project**
Insert financial incentives for performance	Objectives is clearer than performance	Add financial incentives in the contract for achieving project objectives.

Create possibilities to actively share knowledge between participants.	Operationalization	Organize knowledge sessions in which team members share knowledge among themselves.
Evaluate the Two-model during the project	Specifically the collaboration	Periodically evaluate the collaboration within the project with the whole team in an open consultation.
Unexperienced client should get advised from third party	Not only client, focus on design phase	Engage external expertise in inexperienced areas in the design phase.
Select contractors on project related qualities	This is always done	x
Select personnel on a best for project basis	This is always done	x
Appoint project leaders who are capable to lead the project, both the overall project as the separate disciplines, based on their personal capabilities and project experience.	Also logical	x
Client should be clear about its capacities	Mentioned in create insight in shortcomings	x
Attention is paid to achieving the planning goals		**Attention is paid to achieving the planning goals**
Cogitate and plan the next phases early	To vague operationalized in 2 different wp's	In the tender, ask for a clear planning for the first phase.
Use a joint planning		Make a joint planning for the first and second phases.
Insert financial incentives for the planning		Reward the achievement of the planning with financial incentives.
x		Monitor and recalibrate the planning periodically throughout the project.

Appendix C: Results

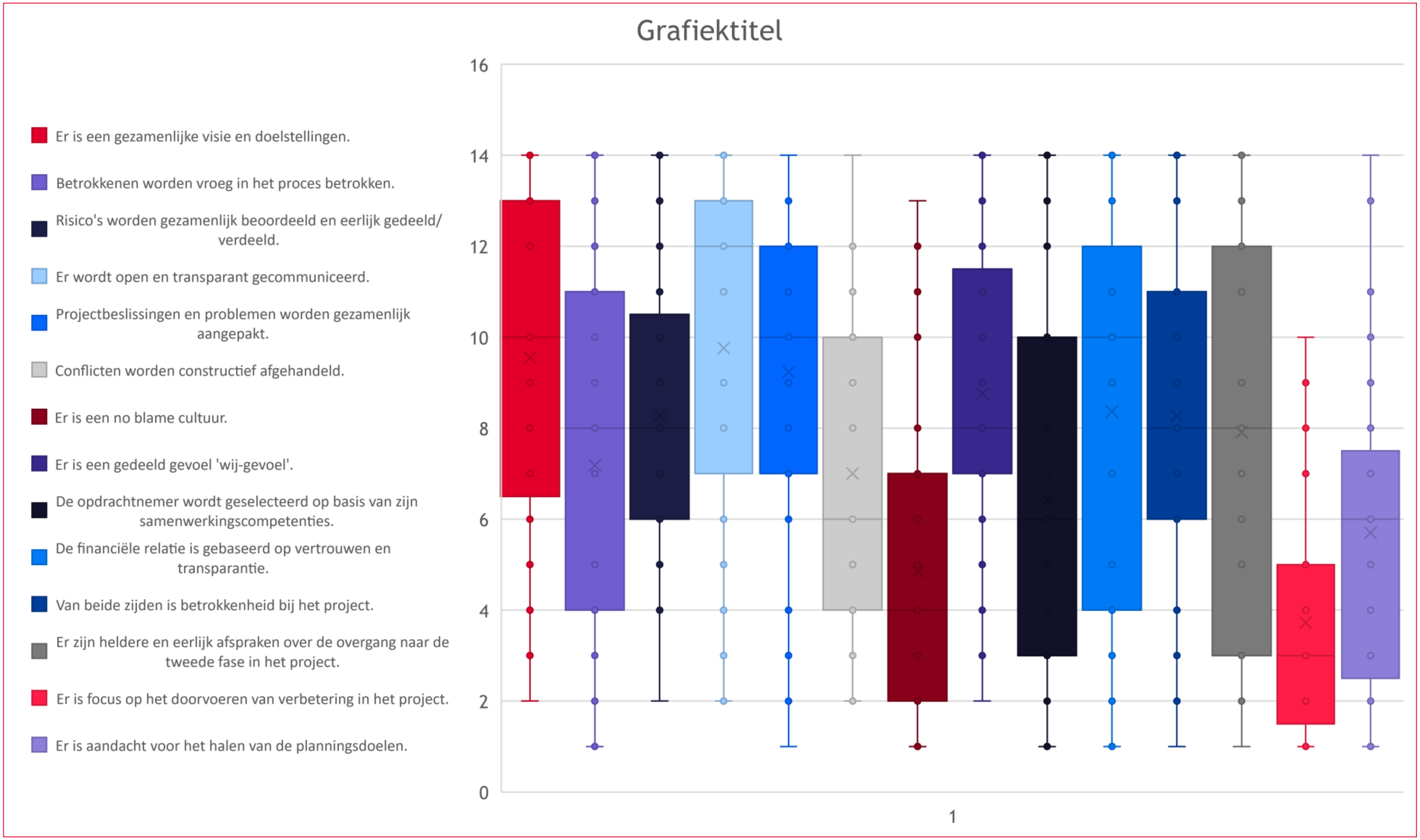
Appendix C1: Benefits to the two-phase model

Benefits	#
Transition to the second phase	**24**
Implementation phase is better prepared (financially, contractually, design).	10
Smaller chance on additional claims and work during realization (VTW's etc.). Less contractual discussions in the 2nd phase.	7
Transition to the realization goes smoother	3
Recalibration after each phase	2
Prevent unexpected surprises in the second phase	1
Stable working process towards the second phase	1
Collaboration	**27**
A feeling of working together is created.	3
Increased trust because of transparancy between both parties	3
Working together with a common goal	3
Better collaboration between Contractor and Client	3
Learning from each other	2
It is more fun to work together	2
Building a joint team	1
Not seeking blame	1
Working together from an equal perspective	1
Optimal solution to the project is found together by collaboration in the 1st phase.	8
Design phase benefits	**28**
More expertise involved at an early stage, resulting in a better product.	12
There is a good risk distribution and better risk management.	11
Realization is not offered under competition, so the quality does not come under price pressure and is therefore more reliable	4
Lower costs and higher quality	1
Decision making	**10**
A better mutual understanding of decisions and interests.	5
Faster Decision making due to the openness	3
Decision can be taken best-for-project across boundaries of OG-ON	1
Higher quality project management	1
Financial benefits	**7**
The two-phase model results in honest work for fair money.	5
More realistic price formation	1
Agree on the price together at an early stage	1
Other	**2**
During the tender not all information is already needed	1
More value for the environment	1
Total comments	**98**

APPENDIX C2: CHALLENGES/DISADVANTAGES TO THE TWO-PHASE MODEL

Challenge/Disadvantage	#
Collaboration	**56**
The cultural differences between client and contractor	**9**
To create trust between Client and contractor	**9**
Letting go of old/traditional client contractor behavior, especially when issues arise	**11**
The different parent companies with different interests and goals	7
Openness and transparancy often difficult, can even be a risk.	5
Different competences are required with the new model	3
Division of responsibilities in the first phase.	2
Different motivations, expectations and interests	3
Awarding criteria should be formulated correctly to avoid strategic behavior in the first phase	2
Being to kind to the other party	1
Attitude and behavior are essential	1
Collaborating for a long time increases the probability of irritations and frustrations	1
Former negative experiences of relational contracts	1
Flexibility of the client's organization	1
Financial challenges	8
Finding a fair price forming mechanism	4
Creating a shared price in harmony	2
Limited competition for the definitive price	1
Costs that normally are made in the realization phase now in the first phase	1
Expertise and experience in the first phase	10
To finish the first phase on time and within budget	4
Planning of the first phase can delay	1
Planning of the first phase	1
Reserverving enough time and finances for the first phase	1
Different level of knowledge/experience	3
The newness of the two-phase model	7
Uncertainty due to the 'Newness' of the model	4
Two-phase model does not automatically translate to the sub-contractors	1
Differences in form for each client	1
Client can be reluctant	1
Risk related challenges	**4**
Shared risk dossier and planning can be difficult	2
Dividing the risks equally	1
Free form of contract	1
Transition to the 2nd phase	3
When transitioning from to a more traditional relation for the second phase attention should be put to continuing the collaboration.	1
Fluent transition to the second phase	1
In case of failure to continue to the second phase big delays	1
Other	6
Decision making takes a little more time, as more consultation is needed.	2
No certainty for the contractor untill the contract for the second phase is signed	1
Total	**86**

APPENDIX C3: DISTRIBUTION OF COLLABORATIVE PRINCIPLES



Appendix C4: Independent T-test for Principle difference between Contractor and Client

	Levene's test for equality of Variances			Independent t-test for equality of means				
Collaborative principles		F	sig	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
There is a common vision and objectives.	Equal variances not assumed	4,32	0,05	-0,871	25,3	0,392	-1,21905	1,39898
Involve all stakeholders of the project in setting vision and goals.	Equal variances assumed	0,704	0,409	-1,695	27	0,102	-2,33810	1,37911
Risks are assessed jointly and shared/distributed fairly.	Equal variances assumed	0,542	0,468	-0,057	27	0,955	-0,06667	1,15966
There is open and transparent communication.	Equal variances assumed	0,010	0,919	0,902	27	0,375	1,32381	1,46818
Project decisions and problems are tackled together.	Equal variances assumed	0,085	0,773	-1,078	27	0,291	-1,29048	1,19702
Conflicts are dealt with constructively.	Equal variances assumed	0,032	0,859	1,700	27	0,101	2,11429	1,24377
There is a no blame culture.	Equal variances assumed	0,703	0,409	0,445	27	0,660	0,60952	1,37090
There is a shared feeling of us.	Equal variances assumed	0,027	0,871	0,273	27	0,787	0,34762	1,27551
The contractor is selected on the basis of his collaboration competences.	Equal variances assumed	0,006	0,937	-0,750	27	0,460	-1,17143	1,56200
The financial relationship is based on trust and transparency.	Equal variances assumed	0,710	0,407	0,317	27	0,754	0,52381	1,65426
There is involvement in the project from both sides.	Equal variances assumed	0,006	0,941	-0,278	27	0,783	-0,35238	1,26686
There are clear and honest agreements about the transition to the second phase in the project.	Equal variances assumed	7,285	0,012	0,674	27	0,506	1,11429	1,65335
There is a focus on implementing improvement in the project	Equal variances assumed	2,939	0,098	1,567	27	0,129	1,49048	0,95133
Attention is paid to achieving the planning goals	Equal variances assumed	0,860	0,362	-0,829	27	0,414	-1,08571	1,30947

APPENDIX C5: DIFFERENCES IN PRINCIPLE RANKING BETWEEN CLIENT AND CONTRACTOR

Value	Client		Contractor	Value
10,5	There is open and transparent communication.		There is a common vision and objectives.	10,3
9,1	There is a shared feeling of 'us'.		Project decisions and problems are tackled together.	10,2
9,1	There is a common vision and objectives.		There is open and transparent communication.	9,5
9,1	Project decisions and problems are tackled together.		There is a shared feeling of 'us'.	9,1
8,7	The financial relationship is based on trust and transparency.		**There is involvement in the project from both sides.**	8,5
8,4	Conflicts are dealt with constructively.		**Stakeholders are involved early in the process.**	7,8
8,4	There are clear and honest agreements about the transition to the second phase in the project.		Risks are assessed jointly and shared/distributed fairly.	7,7
7,9	Risks are assessed jointly and shared/distributed fairly.		The financial relationship is based on trust and transparency.	7,7
7,9	**There is involvement in the project from both sides.**		There are clear and honest agreements about the transition to the second phase in the project.	7,6
5,7	**Stakeholders are involved early in the process.**		The contractor is selected based on his collaboration competences.	6,5
5,5	There is a no blame culture.		Attention is paid to achieving the planning goals.	6,2
5,4	The contractor is selected based on his collaboration competences.		Conflicts are dealt with constructively.	6,1
5,2	Attention is paid to achieving the planning goals.		There is a no blame culture.	5,1
4,1	There is a focus on implementing improvement in the project.		There is a focus on implementing improvement in the project.	2,8
	Total		Total	

APPENDIX C6: ALL WORKING PRACTICES AND AVERAGE VALUE*PRINCIPLE

Working practice		Value	
Werk met een gezamenlijke planning voor opdrachtgever en opdrachtnemer.	1	4,70	Er wordt open en transparant gecommuniceerd.
Organiseer een informeel overleg zonder agenda waar gevoelige informatie kan worden gedeeld.	2	4,41	Er wordt open en transparant gecommuniceerd.
Spreek je uit over de belangen van de moeder-organisatie om gezamenlijk tot een heldere en vergelijkbare projectvisie te komen.	3	4,40	Er is een gezamenlijke visie en doelstellingen.
Creëer een gedeelde visie aan het begin van het project door middel van een workshop/visiedag.	4	4,28	Er is een gezamenlijke visie en doelstellingen.
Regel een gedeelde locatie waar het projectteam samen kan werken.	5	4,22	Er is een gedeeld gevoel 'wij-gevoel'.
Stem doelstellingen aan het begin van het project met elkaar af door middel van een workshop/visiedag.	6	4,11	Er is een gezamenlijke visie en doelstellingen.
Creëer een (online)omgeving waarin alle relevante informatie beschikbaar is voor alle teamleden	7	4,08	Er wordt open en transparant gecommuniceerd.
Organiseer een efficiënte vergaderstructuur met vaste overleggen, agenda's en verslagen.	8	4,05	Er wordt open en transparant gecommuniceerd.
Organiseer structurele gezamenlijke sessies om de visie en doelen te herijken en vernieuwen.	9	4,05	Er is een gezamenlijke visie en doelstellingen.
Organiseer regelmatig gezamenlijke vergaderingen waar besluiten worden genomen.	10	4,03	Projectbeslissingen en problemen worden gezamenlijk aangepakt.
Maak afspraken over het gemeenschappelijk oplossen van problemen en bespreek deze in het team.	11	4,03	Projectbeslissingen en problemen worden gezamenlijk aangepakt.
Organiseer informele teambuildingsactiviteiten als borrels, excursies of het vieren van mijlpalen.	12	3,93	Er is een gedeeld gevoel 'wij-gevoel'.
Beloon en benoem in het team goed gedrag met betrekking tot het gezamelijk oplossen van problemen.	13	3,81	Projectbeslissingen en problemen worden gezamenlijk aangepakt.
Organiseer periodiek een stuurgroep met het management van beide moederorganisaties, zodat zij betrokken blijven bij het project.	14	3,76	Van beide zijden is betrokkenheid bij het project.
Maak gebruik van open boek boekhouding.	15	3,73	De financiële relatie is gebaseerd op vertrouwen en transparantie.
Spreek bij de start van de eerste fase duidelijke Go/no go voorwaarden af voor de overgang naar de tweede fase.	16	3,71	Er zijn heldere en eerlijk afspraken over de overgang naar de tweede fa
Ontwikkel de prijs periodiek en corriceer voor verandering in risico's of scope.	17	3,70	De financiële relatie is gebaseerd op vertrouwen en transparantie.
Allokeer risico's aan de partij die ze het best kan beheersen en mitigeren door dit vast te leggen in een risico register.	18	3,66	Risico's worden gezamenlijk beoordeeld en eerlijk gedeeld/verdeeld.
Creëer een gezonde winstmarge door deze vast te leggen in het contract.	19	3,62	De financiële relatie is gebaseerd op vertrouwen en transparantie.
Creëer een sterk mandaat voor het projectteam hebben bij het nemen van beslissingen.	20	3,61	Van beide zijden is betrokkenheid bij het project.
Deel en update periodiek een risicoregister dat gedeeld wordt met alle partijen binnen het projectteam.	21	3,53	Risico's worden gezamenlijk beoordeeld en eerlijk gedeeld/verdeeld.
Maak een gezamenlijke kostenraming parallel aan de ontwikkeling van het ontwerp in de 1e fase.	22	3,45	De financiële relatie is gebaseerd op vertrouwen en transparantie.
Betrek alle stakeholders van het project bij het vaststellen van visie en doelen.	23	3,36	Er is een gezamenlijke visie en doelstellingen.
Voer een uitgebreide project opstart (PSU) uit aan het begin van de eerste fase van de samenwerking.	24	3,35	Betrokkenen worden vroeg in het proces betrokken.
Leg de filosofie van het twee-fasen model uit aan de projectteamleden aan het begin van het project en bij nieuwe project teamleden.	25	3,35	Betrokkenen worden vroeg in het proces betrokken.
Identificeer risico's vroegtijdig tijdens dialoogfase en aanbesteding.	26	3,33	Risico's worden gezamenlijk beoordeeld en eerlijk gedeeld/verdeeld.
Organiseer gezamenlijke risico beoordelingsworkshops in de eerste fase van de samenwerking.	27	3,33	Risico's worden gezamenlijk beoordeeld en eerlijk gedeeld/verdeeld.
Zet een gezamenlijk projectmanagementteam op.	28	3,33	Van beide zijden is betrokkenheid bij het project.
Organiseer formelere teambuildingsactiviteiten als coachingsessies en feedbacksessies.	29	3,32	Er is een gedeeld gevoel 'wij-gevoel'.
Betrek een onafhankelijke facilitator voor het opstellen van een gezamenlijke visie en doelstellingen.	30	3,27	Er is een gezamenlijke visie en doelstellingen.
Organiseer bij de overgang naar de volgende fasen een project follow up (PFU).	31	3,24	Betrokkenen worden vroeg in het proces betrokken.
Planning, scope en prestatiedoelen worden door middel van een dialoog met de opdrachtnemer tijdens de aanbestedingsfase besproken.	32	3,22	Betrokkenen worden vroeg in het proces betrokken.
Maak duidelijke afspraken over intellectueel eigendom in het ontwerp.	33	3,16	Er zijn heldere en eerlijk afspraken over de overgang naar de tweede fa
Zorg voor een behoorlijke compensatie van de opdrachtnemer in het geval van een exit en neem deze afspraken ook op in de contractstukken.	34	3,16	Er zijn heldere en eerlijk afspraken over de overgang naar de tweede fa
Creëer één geïntegreerd team, zonder dubbele rollen bij opdrachtnemer en opdrachtgever.	35	3,16	Er is een gedeeld gevoel 'wij-gevoel'.
Laat de toekomstige eigenaar en beheerder deel uitmaken van het projectteam.	36	3,11	Van beide zijden is betrokkenheid bij het project.
Creëer een gezamenlijk 'merk', bijvoorbeeld middels een projectwebsite, een logo of gezamenlijk briefpapier.	37	3,10	Er is een gedeeld gevoel 'wij-gevoel'.
Maak afspraken over de wijze waarop (potentiele) conflictsituaties worden afgehandeld en bespreek deze met het team.	38	3,05	Conflicten worden constructief afgehandeld.
Zorg dat routines, zoals werktijden en vergaderstructuren hetzelfde zijn.	39	3,05	Er is een gedeeld gevoel 'wij-gevoel'.
Leg samenwerkingsafspraken gezamenlijk vast in een formeel document.	40	2,92	Betrokkenen worden vroeg in het proces betrokken.
Organiseer een training of webinar over het twee-fasen model bij de start van het project.	41	2,76	Er zijn heldere en eerlijk afspraken over de overgang naar de tweede fase in
Breng de tendermedewerkers over naar de ontwerpfase.	42	2,74	De opdrachtnemer wordt geselecteerd op basis van zijn samenwerkingscon
Creëer een duidelijk geschillenbeslechtingsproces.	43	2,74	Conflicten worden constructief afgehandeld.
Deel risico's en beloningen collectief door een gedeelde risicopot te implementeren.	44	2,73	Risico's worden gezamenlijk beoordeeld en eerlijk gedeeld/verdeeld.
Neem vaste prijselementen op in de gunningscriteria voor elementen zoals uurloon en machinegebruik.	45	2,66	De financiële relatie is gebaseerd op vertrouwen en transparantie.
Selecteer individuele teamleden op basis van samenwerkingscompetentie.	46	2,65	De opdrachtnemer wordt geselecteerd op basis van zijn samenwerkingscon
Geef - voor een tijdige afwikkeling - de afhandeling van conflicten expliciet ruimte op de agenda van gezamenlijke overleggen.	47	2,59	Conflicten worden constructief afgehandeld.
Monitor en herijk de planning periodiek gedurende het project.	48	2,57	Er is aandacht voor het halen van de planningsdoelen.
Maak een gezamenlijke planning voor de eerste en tweede fase.	49	2,47	Er is aandacht voor het halen van de planningsdoelen.
Schakel een externe facilitator in voor het faciliteren van het geschillenproces.	50	2,46	Conflicten worden constructief afgehandeld.
Laat opdrachtnemer een samenwerkingsplan opstellen als onderdeel van de tenderfase.	51	2,39	De opdrachtnemer wordt geselecteerd op basis van zijn samenwerkingscon
Voer een samenwerkingsassessment uit in de aanbestedingsfase.	52	2,34	De opdrachtnemer wordt geselecteerd op basis van zijn samenwerkingscon
Reflecteer regelmatig met het team, en identificeer en bemoedig situaties die bijdragen aan het opbouwen van vertrouwen.	53	2,15	Er is een no blame cultuur.
Vraag in de aanbesteding om een duidelijke planning voor de eerste fase.	54	2,12	Er is aandacht voor het halen van de planningsdoelen.
Laat opdrachtnemer in de aanbestedingsfase een gedetailleerde kostenraming maken.	55	2,08	De financiële relatie is gebaseerd op vertrouwen en transparantie.
Schakel een externe coach in voor het faciliteren van de samenwerking.	56	1,84	Er is een no blame cultuur.
Richt het projectteam zo in dat er gelijkheid in plichten en rollen tussen teamleden van beide partijen onstaat.	57	1,79	Er is een no blame cultuur.
Maak tekortkomingen bespreekbaar in de project opstart (PSU) door hiervoor expliciet tijd te reserveren.	58	1,76	Er is een no blame cultuur.
Beloon het behalen van de planning met financiële prikkels.	59	1,73	Er is aandacht voor het halen van de planningsdoelen.
Organiseer periodiek een anonieme evaluatie van de samenwerking in het team en bespreek de resultaten met elkaar.	60	1,69	Er is een no blame cultuur.
Evalueer met hele team periodiek de samenwerking binnen het project in een open overleg.	61	1,55	Er is focus op het doorvoeren van verbetering in het project.
Schakel externe expertise in op onervaren gebieden in de ontwerpfase.	62	1,54	Er is focus op het doorvoeren van verbetering in het project.
Organiseer kennissessies waarin teamleden onderling kennisdelen.	63	1,31	Er is focus op het doorvoeren van verbetering in het project.
Voeg financiële prikkels in het contract toe voor het behalen van projectdoelstellingen.	64	1,13	Er is focus op het doorvoeren van verbetering in het project.

APPENDIX C7: ADDITIONAL WORKING PRACTICES

Additional Working Practices	Comment
There is a common vision and objectives.	
Organize collaboration days when working online is the norm.	Found in working together on one location
Align personal goals	Can be part of create a shared vision
Make objectives measurable and record them	Can be part of create a shared vision
Involve vision and objective in making choices	Can be part of create a shared vision
Risks are assessed jointly and shared/distributed fairly.	
Make the control of the main risks under the scope of the contract	
There is open and transparent communication.	
Decouple contractual discussions from substantive discussions	
Inspire each other through storytelling, good experiences from practice	
set rules of conduct e.g., "talk to each other, not about each other" "do not attack each other"	
Project decisions and problems are tackled together.	
Make SMART agreements about preparing decision-making (who does what and when is the decision made by whom)	Implementation of organize regular meetings in which decisions are taken
Have a tandem of ON-OG officials prepare decision-making jointly	Implementation of organize regular meetings in which decisions are taken
Conflicts are dealt with constructively.	
Make use of the team philosophy	Can be part of the philosophy of the two-phase model
Be available to define the conflict and the resolution directions so that good decision-making can take place	Can be part of: Make agreements on solving problems together
There is a no blame culture.	
Make agreements in the PSU about how people deal with each other	Can be part of the philosophy of the two-phase model
Define, train and select on the desired leadership	
There is a shared feeling of us.	
Look at similar projects with the team	Can be implemented in informal activities, or philosophy of the two-phase model
The contractor is selected based on his collaboration competences.	
Let the client also draw up a collaboration plan	Principle scores low, but important if this incorporated.
The financial relationship is based on trust and transparency.	
Clearly record the process by which changes to the price are made.	Will be suggested in the focus group
Make agreements about AKWR percentages in advance	Will be suggested in the focus group
There is involvement in the project from both sides.	
Give presentations together at all parent companies, at a prominent level	Can be done by the steering group,
Clear responsibilities	Can be achieved by the (psu)
Attention is paid to achieving the planning goals	
Set a clear end milestone for the first phase (in time and product)	
Involve the executors in drawing up the planning	Make a joint planning

APPENDIX C8: INDEPENDENT T-TEST WORKING PRACTICES DIFFERENCE BETWEEN CONTRACTOR AND CLIENT

		Levene's Test for Equality of Variances		t-test for Equality of Means				
Working practice		**F**	**Sig.**	**t**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**Std. Error Difference**
Create a shared vision at the beginning of the project through a workshop/vision day.	Equal variances assumed	0,427	0,519	0,335	27	0,740	0,10476	0,31306
Align objectives at the beginning of the project through a workshop/vision day.	Equal variances assumed	0,000	1,000	0,212	26	0,834	0,07143	0,33678
Speak out about the interests of the parent organization in order to jointly arrive at a clear and comparable project vision.	Equal variances assumed	0,319	0,577	-0,147	27	0,884	-0,03810	0,25946
Organize structural joint sessions to recalibrate and renew the vision and goals.	Equal variances assumed	1,517	0,229	0,645	27	0,524	0,19048	0,29528
Involve an independent facilitator to create a shared vision and objectives.	Equal variances assumed	0,024	0,878	-0,417	27	0,680	-0,17143	0,41101
Stakeholders are involved early in the process.	Equal variances assumed	0,464	0,502	-0,293	25	0,772	-0,13333	0,45431
Planning, scope and performance targets are discussed through a dialogue with the contractor during the tendering phase.	Equal variances assumed	0,376	0,545	0,147	27	0,884	0,03810	0,25946
Perform a comprehensive project startup (PSU) at the beginning of the first phase of the collaboration.	Equal variances assumed	0,502	0,485	0,347	27	0,732	0,09524	0,27478
When transitioning to the next phases, organize a project follow up (PFU).	Equal variances assumed	0,035	0,854	0,354	27	0,726	0,10476	0,29627
Record a collaboration agreement jointly in a formal document.	Equal variances assumed	0,143	0,708	-0,162	27	0,872	-0,06667	0,41042
Explain the philosophy of the two-phase model to the project team members at the beginning of the project and to new project team members.	Equal variances assumed	5,111	0,032	1,125	21,887	0,273	0,22857	0,20312
Identify risks early during dialogue phase and tendering.	Equal variances assumed	0,003	0,955	0,590	27	0,560	0,20952	0,35505
Organize joint risk assessment workshops in the first phase of the collaboration.	Equal variances assumed	1,219	0,280	-1,752	26	0,092	-0,45128	0,25754
Allocate risks to the party that can best control and	Equal variances assumed	8,633	0,007	-2,866	21,264	0,009	-0,59048	0,20600

mitigate them by recording them in a risk register.								
Share risks and rewards collectively by implementing a shared risk pot.	Equal variances assumed	0,626	0,436	-0,621	25	0,540	-0,18333	0,29513
Periodically share and update a risk register that is shared with all parties within the project team.	Equal variances assumed	0,320	0,576	-1,411	27	0,170	-0,43333	0,30705
Organize an informal meeting without an agenda where sensitive information can be shared.	Equal variances assumed	2,268	0,144	0,854	27	0,400	0,31429	0,36786
Work with a joint planning for client and contractor.	Equal variances assumed	1,282	0,268	0,560	27	0,580	0,08095	0,14464
Organize an efficient meeting structure with fixed meetings, agendas and reports.	Equal variances assumed	3,172	0,086	0,930	27	0,361	0,33810	0,36370
Create an (online) environment in which all relevant information is available to all team members	Equal variances assumed	1,106	0,302	0,357	27	0,724	0,12857	0,35993
Regularly organize joint meetings where decisions are made.	Equal variances assumed	2,904	0,100	0,372	27	0,713	0,11429	0,30725
Reward and name good behavior in the team with regard to solving problems together.	Equal variances assumed	0,740	0,397	1,496	27	0,146	0,40952	0,27371
Make agreements about solving problems together and discuss them in the team.	Equal variances assumed	0,057	0,813	-2,024	27	0,053	-0,43810	0,21647
For a timely settlement, give the handling of conflicts explicit space on the agenda of joint consultations.	Equal variances assumed	0,056	0,814	-1,118	25	0,274	-0,30769	0,27527
Engage an external facilitator to facilitate the dispute resolution process.	Equal variances assumed	0,000	1,000	0,391	26	0,699	0,14286	0,36529
Create a clear dispute resolution process.	Equal variances assumed	0,006	0,937	-0,570	26	0,574	-0,21026	0,36901
Make agreements about the way in which (potential) conflict situations are handled and discuss these with the team.	Equal variances assumed	0,010	0,922	-0,597	27	0,555	-0,16190	0,27103
Make shortcomings negotiable in the project start-up (PSU) by explicitly reserving time for this.	Equal variances assumed	7,218	0,012	0,660	15,661	0,519	0,26154	0,39629
Periodically organize an anonymous evaluation of the collaboration in the team and discuss the results with each other.	Equal variances assumed	0,689	0,414	1,077	27	0,291	0,44762	0,41572

Set up the project team in such a way that there is equality in duties and roles between team members of both parties.	Equal variances assumed	5,858	0,023	0,058	27	0,954	0,02381	0,40801
Reflect with the team regularly and identify and encourage situations that contribute to building trust.	Equal variances assumed	1,343	0,257	1,238	27	0,226	0,39048	0,31538
Engage an external coach to facilitate the collaboration.	Equal variances assumed	0,033	0,857	1,537	26	0,136	0,57143	0,37168
Organize more formal team building activities such as coaching sessions and feedback sessions.	Equal variances assumed	3,037	0,093	- 0,163	27	0,872	-0,05714	0,35119
Create one integrated team, without double roles in contractor and client.	Equal variances assumed	2,673	0,115	- 1,628	25	0,116	-0,65385	0,40170
Arrange a shared location where the project team can work together.	Equal variances assumed	0,021	0,887	0,072	27	0,943	0,00952	0,13279
Let the contractor draw up a collaboration plan as part of the tender phase.	Equal variances assumed	0,007	0,934	- 0,484	26	0,633	-0,18974	0,39223
Transfer the tender staff to the design phase.	Equal variances assumed	0,560	0,461	- 1,021	27	0,316	-0,36667	0,35925
Select individual team members based on collaboration competency.	Equal variances assumed	1,251	0,273	- 1,351	27	0,188	-0,48571	0,35942
Make use of open book accounting.	Equal variances assumed	0,014	0,907	- 0,420	27	0,678	-0,10000	0,23827
Create a healthy profit margin by recording it in the contract.	Equal variances assumed	3,631	0,068	1,194	26	0,243	0,28571	0,23937
Include fixed price elements in the award criteria for elements such as hourly pay and machine usage.	Equal variances assumed	0,579	0,455	0,494	23	0,626	0,26282	0,53193
Develop the price periodically and correct for changes in risk or scope.	Equal variances assumed	0,011	0,916	- 0,103	27	0,919	-0,02857	0,27725
Have the contractor make a detailed cost estimate during the tendering phase.	Equal variances assumed	2,415	0,135	1,188	21	0,248	0,66154	0,55704
Make a joint cost estimate parallel to the development of the design in the 1st phase.	Equal variances assumed	2,588	0,119	- 2,194	27	0,037	-0,70000	0,31903
Set up a joint project management team.	Equal variances assumed	2,775	0,108	- 1,607	26	0,120	-0,51795	0,32231
Periodically organize a steering committee with the management of both parent organizations, so that they remain involved in the project.	Equal variances assumed	2,891	0,101	- 0,722	27	0,477	-0,17143	0,23750

Create a strong mandate for the project team to have in making decisions.	Equal variances assumed	1,602	0,216	-1,843	27	0,076	-0,50952	0,27650
Let the future owner and administrator be part of the project team.	Equal variances assumed	0,680	0,418	0,661	25	0,515	0,21978	0,33256
Make clear agreements about intellectual property in the design.	Equal variances assumed	0,017	0,898	1,936	26	0,064	0,64286	0,33209
At the start of the first phase, agree on clear Go/no go conditions for the transition to the second phase.	Equal variances assumed	0,288	0,596	-0,268	27	0,791	-0,04762	0,17794
Ensure proper compensation from the contractor in the event of an exit and include these agreements in the contract documents as well.	Equal variances assumed	0,065	0,800	0,223	26	0,825	0,07143	0,32005
Organize a training or webinar on the two-phase model at the start of the project.	Equal variances assumed	0,213	0,648	1,245	27	0,224	0,31429	0,25242
Engage external expertise in inexperienced areas in the design phase.	Equal variances assumed	15,628	0,001	-0,504	27	0,618	-0,14286	0,28350
Periodically evaluate the collaboration within the project with the whole team in an open consultation.	Equal variances assumed	0,835	0,369	-0,945	27	0,353	-0,28095	0,29738
Organize knowledge sessions in which team members share knowledge among themselves.	Equal variances assumed	1,013	0,323	-0,769	27	0,449	-0,23810	0,30977
Add financial incentives in the contract for achieving project objectives.	Equal variances assumed	3,439	0,075	1,395	25	0,175	0,45604	0,32687
In the tender, ask for a clear planning for the first phase.	Equal variances assumed	0,531	0,473	0,769	26	0,449	0,32821	0,42667
Monitor and recalibrate the planning periodically throughout the project.	Equal variances assumed	1,716	0,201	-1,144	27	0,263	-0,24286	0,21232
Reward the achievement of the planning with financial incentives.	Equal variances assumed	0,487	0,491	1,874	26	0,072	0,71429	0,38107
Make a joint planning for the first and second phases.	Equal variances assumed	2,302	0,141	0,177	27	0,861	0,04762	0,26941

Appendix C9: Differences in top ranked working practices between client and contractor.

Rank	Client	Rank	Contractor
4	Work with a joint planning for client and contractor.	8	Speak out about the interests of the parent organization to jointly arrive at a clear and comparable project vision.
9	Organize an informal meeting without an agenda where sensitive information can be shared.	17	Make agreements about solving problems together and discuss them in the team.
15	Organize an efficient meeting structure with fixed meetings, agendas and reports.	7	Create a shared vision at the beginning of the project through a workshop/vision day.
6	Arrange a shared location where the project team can work together.	1	Work with a joint planning for client and contractor.
13	Create an (online) environment in which all relevant information is available to all team members	16	Align objectives at the beginning of the project through a workshop/vision day.
10	Organize informal team building activities such as get-togethers, excursions or celebrating milestones.	4	Arrange a shared location where the project team can work together.
3	Create a shared vision at the beginning of the project through a workshop/vision day.	9	Regularly organize joint meetings where decisions are made.
1	Speak out about the interests of the parent organization to jointly arrive at a clear and comparable project vision.	10	Organize structural joint sessions to recalibrate and renew the vision and goals.
7	Regularly organize joint meetings where decisions are made.	2	Organize an informal meeting without an agenda where sensitive information can be shared.
8	Organize structural joint sessions to recalibrate and renew the vision and goals.	6	Organize informal team building activities such as get-togethers, excursions or celebrating milestones.
18	At the start of the first phase, agree on clear Go/no go conditions for the transition to the second phase.	25	Create a strong mandate for the project team to have in making decisions.
12	Reward and name good behavior in the team with regard to joint problem solving.	12	Reward and name good behavior in the team with regard to solving problems together.
	Make use of open book accounting.	5	Create an (online) environment in which all relevant information is available to all team members
	Develop the price periodically and correct for changes in risk or scope.		Periodically organize a steering committee with the management of both parent organizations, so that they remain involved in the project.
	Create a healthy profit margin by recording it in the contract.	3	Organize an efficient meeting structure with fixed meetings, agendas and reports.
5	Align objectives at the beginning of the project through a workshop/vision day.		Allocate risks to the party that can best control and mitigate them by recording them in a risk register.
	Make agreements about solving problems together and discuss them in the team.		Involve an independent facilitator to create a shared vision and objectives.
2	Make agreements about the way in which (potential) conflict situations are handled and discuss these with the team.	11	At the start of the first phase, agree on clear Go/no go conditions for the transition to the second phase.

Appendix C10 Working against (2 or more participants)

Working practice	#Works against
Have the contractor make a detailed cost estimate during the tendering phase.	**7**
Include fixed price elements in the award criteria for elements such as hourly pay and machine usage.	**4**
Involve all stakeholders of the project in setting vision and goals.	2
Share risks and rewards collectively by implementing a shared risk pot.	2
For a timely settlement, give the handling of conflicts explicit space on the agenda of joint consultations.	2
Create one integrated team, without double roles in contractor and client.	2
Let the future owner and administrator be part of the project team.	2
Add financial incentives in the contract for achieving project objectives.	2

Appendix C11: update to the framework.

Update	Reason (focus group)
Organize a Project Start up (PSU)	
Make agreements on collaboration	Main conversation in the psu should be on how to collaborate, agreements in the psu should be used in the whole project life cycle.
Organize regular meetings	
Organize regular official meetings	Official added to clarify to distinguish from other type of meetings.
Organize regular shared working sessions to discuss concepts.	Working session identified as a different type of meeting.
Organize an informal meeting (BOT) without an agenda to share strategic and sensitive information and discuss the collaboration.	Expansion to include a better definition of the BOT.
Working 'together'	
Make it easy to change team members if necessary for the collaboration in the team	Important according to both parties.
Organize informal activities that match with all project team members (e.g., Family days, celebration of milestones)	Important that also the more executive team-members are willing to join the events.
Arrange a shared location where the team can work together and align working days.	If the working days are not aligned people will still not meet each other
Organize and prioritize structural sessions to recalibrate and renew the vision and goals.	Important that team members prioritize attendance.
Name and reward good behavior in relation to the shared solving of problems by making use of 'storytelling.'	Storytelling is added as a specific operationalization.
Parent company	
Periodically organize a steering committee with the management of both parent organizations and invite them to the project, to keep them involved with the project.	Inviting the steering committee to the project will build trust between the steering committee and enlarge their commitment.
Information sharing	
Make clear agreements on how to use the information sharing system.	Could lead to acting of one of the parties on information that is not final yet. Communication is important here.
Identify how risks should be mitigated and allocate these to the party that can best mitigate them by establishing a shared risk dossier.	Mitigation should be investigated first before allocating.
Work with a shared planning and report for the Client and contractor	Added, report as this is also important.
Keep the price-forming mechanism free	
Create a healthy profit margin (Based on AKWR) by putting this in the contract)	Should by wider than pure profit, based on general costs, risk and scope.
Use a cost-table to determine honest costs	Helps in determining the difficult costs that are ambiguous
Us a cost-reference estimate in the tender phase.	Provided by OG, used by ON.

Appendix C12 Final Framework

Collaborative Principles

- There is open and transparent communication.
- There is a common vision and objectives
- Project decisions and problems are tackled together
- There is a shared feeling of 'us'
- The financial relationship is based on trust and transparency.
- Risks are assessed jointly and shared/distributed fairly.
- There are clear and honest agreements about the transition to the second phase in the project.
- There is involvement in the project from both sides.

Organize a project start up (PSU)

- Create a shared vision at the beginning of the project.
- Align objectives at the beginning of the project.
- Agree on clear go/no go conditions for the transition to the second phase.
- Make agreements on how collaboration is organized and how problems are dealt with in the first phase (eg.by using a theoretical model or code of conduct).

Organize regular meetings

- Organize regular official meetings with a clear agenda, purpose and reports.
- Take decisions collaboratively in shared meetings and be clear on when they are taken.
- Organize regular shared 'working sessions' to discuss- and work on concepts together.
- Organize an informal meeting (BOT) without an agenda to share strategic and sensitive information.

Work together

- Arrange a shared location where the team can work together and align working days.
- Organize informal activities that match with all project team members (e.g. Family days, celebration of mile-stones)
- Name and reward good behavior in relation to the shared solving of problems by making use of 'storytelling'.
- Organize and prioritize structural sessions to recalibrate and renew the vision and goals.
- Keep the possibility to change team members open.

Involve the parent company

- Speak out about the interests of the parent organization in order to jointly arrive at a clear and comparable project vision.
- Periodically organize a steering committee with the management of both parent organizations and invite them to the project, so that they remain involved in the project.
- Create a strong mandate for the project team when making decisions.

Share information wisely

- Work with a shared planning and report for the Client and contractor.
- Create an (online) environment in which all relevant information is available to all team members.
- Make clear agreements on how to use the information sharing system.
- Identify how risks should be mitigated and allocate these to the party that can best mitigate them by establishing a shared risk dossier.
- Share and update the risk register periodically with all parties in the project team.

Keep the price forming mechanism open

- Make use of open book accounting.
- Create a healthy profit margin (Based on AKWR) by putting this in the contract.
- Us a cost-reference estimate in the tender phase.
- Use a cost-table to determine honest costs for uncertain products.
- Develop the price periodically and correct for changes in price or scope.
- Avoid using fixed price elements in the tender phase.

Appendix D: Focus group set-up

Appendix D1: Focus group questioning route

#	Onderwerp	Vraag	Duur
1	**Kennismaken deelnemers**	Wat is uw naam, huidige functie en wat is uw ervaring met het twee-fasen model?	**10 min**
2	**Presentatie**	-	**10 min**
4	**Meest belangrijke werkmethoden**	Wat zijn volgens u de barrières en kansen bij het implementeren van de volgende werkmethoden?	**25 min**
5	**Prijsvorming**	Hoe moet de prijsvorming worden georganiseerd?	**10 min**
6	**Samenwerkings-identiteit**	Wat is volgens u het belang van het vormen van een gezamenlijke identiteit in het twee-fasen model? Waarom?	**10 min**
	Uitloop	-	**90 min**

Appendix D2: Focus group minutes [Client]

Presentatie

De focusgroep wordt gestart met een presentatie waarin de belangrijkste principes en werkmethoden worden geïntroduceerd. Hierin worden de definities zoals gebruikt in het onderzoek gepresenteerd. En het schema zoals te vinden in hoofdstuk 6 wordt geïntroduceerd. Dit schema is besproken met behulp van Mural, het overzicht hiervan te vinden in de bijlage.

Discussie werkmethoden

De respondenten krijgen de kans om kansen en barrières aan te geven voor het implementeren de werkmethoden.

Thema: Organiseer een project opstart

RS2: Als eerste opmerking denk ik dat het goed is om aan te geven dat ik veel dingen zie staan, waarbij ik denk, <u>deze zijn in het algemeen belangrijk voor de samenwerking</u> en niet alleen voor het twee-fasen model. Bijvoorbeeld bij een PSU, die doen we heel vaak, maar wat mij dan interesseert en dat gaan we vast wel bespreken in het gesprek is wanneer is zo'n PSU nou wel succesvol en wanneer niet. Ook waar moet je in de twee-fasen PSU aandacht in besteden wat in een traditioneel D en C contract anders is. Dat mis ik nog een beetje in het schema.

RS3: <u>je merkt dat we met z'n allen in een ontwikkeling zitten</u>. Heel veel dingen die hier staan komen al helemaal niet meer als verassing maar 5 jaar geleden misschien wel. Om even op RS2 te reageren, PSU is noodzakelijk maar niet zaligmakend, het <u>verschil tussen PSU in 2 fasen en traditioneel is dat het rollenspel anders is en partijen gaan zich dus ook anders gedragen</u>. Je bent af van het <u>over de schutting van de aanbesteding gooien als je het goed doet</u>, er zit veel <u>minder spanning</u> in en daardoor worden mensen eerder uitgedaagd. Om dit goed te implementeren heb je wel de dingen nodig die ik hier in de lijst zie staan, die ik overigens best graag zou willen hebben om eens rond te zwaaien.

MD: Mijn afstudeerrapport zal zeker gedeeld worden.

RS1: RS2 ik ben het met je eens, wat is hier nou uniek aan. Maar misschien is dat juist een vraag voor in de PSU. Ook de tegengestelde belangen zou je in zo'n PSU het gesprek aan kunnen gaan.

RS5: Als ik terugkijk op de twee projecten waarin ik zo'n PSU heb gehad, vind ik het grote verschil dat we het veel meer gehad hebben over anders werken, andere rollen. In beide gevallen kwamen we er na de PSU achter dat we niet de juiste mensen aan tafel hadden, zowel bij OG als ON. Iemand die misschien heel goed is in een traditionele setting is misschien minder geschikt, of nog niet geschikt voor deze setting. Bijvoorbeeld met de prijsvorming vraagt dat openheid. Daar moeten we scherp op zijn, dat maakt of het werkt of niet. Uit de PSU: inhoudt kunnen we wel, vooral op de mensen sturen als je maar het idee hebt dat er een zijsturing is vanuit de directie ofzo moet je daar meteen opzitten.

RS4: Waarbij ik wel wil aanvullen, de ervaring is ook wel dat als er maar een kritieke massa is, de rol aanwezigheid, persoon die de principes wel snapt dan kan de rest wel meegetrokken worden. Wat mij betreft is een Benen op tafel overleg dus ook heel belangrijk. Dat je daar kan aangeven wie er misschien moeite mee heeft. Dat hoeft niet meteen te betekenen dat je dan iemand vervangt in het team, maar dat je dan ook iemand kan helpen daarin. Je moet het ergens leren, maar je hebt wel die kritieke massa nodig en je moet het signaleren en bespreken.

RS3: Bij mijn organisatie werken we tegenwoordig met assessments waarbij je zorgt dat je niet alleen de juiste mensen aan tafel hebt, maar dat je ook bij de bedrijven het laat dagen dat dit belangrijk is voor dit project. Dat zorgt ervoor dat als er vervanging nodig is je ook weer de juiste mensen krijgt. We hebben zelfs als een project gehad waar het team niet door de directie, maar door een bedrijfspsycholoog werd samengesteld. Als je dat dan maar zwaar genoeg waardeert in je emvi wordt dat serieus genomen.

RS4: Het is natuurlijk ook een signaalfunctie dat je het waardeert.

RS2: ik hoor in RS4 zijn opmerking dat je het ook vanuit de kant van de OG moet doen?

RS4: ja klopt, ik had het over mijn eigen team, zijn ook mensen die bij elkaar komen, en later wordt dan de contractvorm erbij bedacht.
RS5: helemaal mee eens, wat ik net zij geldt ook voor OG-team.

RS4: misschien is het nog wel belangrijker, als je het goede voorbeeld geeft door bijvoorbeeld aan te geven dat iemand uit je eigen team hier moeite mee heeft, dan creëer je ook openheid voor de andere partij om dat te doen.

RS6: ik hoor positieve dingen over assessments, maar ook veel weerstand tegen assessments zowel intern als extern. Aantal redenen, lastiger om bij een 100den miljoenen project om daar een beslissing te nemen op een team van 10 mensen. Het is ook heel beoordelend en ook niet altijd lang van duur. Je ziet veel verschuivingen in de teams. Aan de andere kant geeft het de juiste incentive aan de marktpartijen om daar op in te zetten. Om daar nou een groot onderdeel van te maken in je bpkv, die richting zie ik niet zo snel. Dit is voor ons een hele actuele discussie.

RS4: bij ons is het ook spannend, ik vraag me af is het twee-fasen specifiek spannend, of is dit altijd zo. Ik denk wel eerder dat hoe meer je met elkaar samenwerkt hoe belangrijker de zachte kant wordt. Dus ergens snap ik wel dat die sneller bij een twee-fasen project wordt betrokken.

RS6: Wat je ook merkt is dat er vanuit de marktpartijen ook heel veel bezwaar tegen komt.

RS3: Daar heb ik nog wel een generieke opmerking over: wat mij heel erg opvalt dat opdrachtgevers niet voor zichzelf kiezen. Wij hebben juist de partijen nodig die daar mee om kunnen gaan. Je doet het niet voor een her tegeling van een fietspad. Dat er dinosaurussen in de markt lopen die dat maar niks vinden, prima die faseren zich vanzelf uit. We hebben het over belastinggeld, laat die goeie mensen maar komen.

RS6: ik denk niet dat wij die vrijheid hebben. Ik merk dat ik een mooie discussie heb geopend.
MD: goede discussie, maar we moeten door.

Thema: Vergadering

RS5: ik denk dat dit niet onderscheidend is voor twee-fasen, goed projectmanagement hoort een degelijke vergaderstructuur bij. Dit geldt ook in andere settingen.

RS4: wat ik wel specifiek vind voor het twee-fasen en dat is natuurlijk wel afhankelijk voor of je echt een gedeelde organisatie bouwt is dat je altijd vanuit een aanbestedingsfase gaat waarin je het samen gaat doen. Wij hadden ook de oude interne overleggen nog staan. Zulke schaduw overleggen moet je voorkomen. Partijen moeten aan de tafel. Je hebt natuurlijk je eigen overleggen, maar je moet zorgen dat je het echt samen doet.

MD: Focus op gezamenlijk dus.

Thema: Informatievoorziening.

RS3: ik kan mijn sticker wel toelichten het gevaar bij de risico's is dat je ze veel te snel alloceert. Je kan beter nadenken over hoe gaan we deze mitigeren en dan pas alloceren, dat is voor de energiebalans en ook het effect veel beter. Soms is de pet van OG hier belangrijk en soms de pet van ON. Dat moet je slim spelen.

MD: dus de werkmethoden zouden we eigenlijk andersom moeten verwoorden: eerst beheersen en dan alloceren.

RS2: het hangt er natuurlijk ook vanaf hoe de risico's zijn gedefinieerd. Ik had ook het geeltje erbij allocatie kan ook een bron van discussie vormen en de beheersing minder effectief maakt.

RS6: Een gezamenlijk risicodossier zou een goede basis zijn. OG maakt een eerste risicodossier dan op basis van de aanbesteding een eerste opzet en die kan dan verder meegenomen worden naar de eerste fase. Aan het eind van fase 1 wordt die dan op basis van het gezamenlijke dossier gealloceerd.

RS4: in die gezamenlijke fase ben je ook al risico's aan het beheersen, dus helemaal aan het eind is ook lastig. In het ontwerp kost het ook al geld.

RS6: In principe is fase 1 bedoelt om risico's te beheersen. Vanuit Rijkswaterstaat wordt de eerste fase meer gezien als samenwerkingsfase onder de UAV-GC. Dus anders dan bij een bouwteam. Wij zien bouwteam wel als onderdeel van het twee fasen model. We hebben bij RWS ook meer UAV-GC dan bouwteam projecten. Als het aan het eind van fase 1 niet past dan moet je her alloceren, maar in principe zou je op basis van de UAV-GC die risico's moeten kunnen verdelen.

RS1: Ik ben benieuwd hoe je kijkt RS6, naar dat wij-gevoel in combinatie met de UAV-GC.

RS6: Dat ligt eraan hoe je ook gaat samenwerken. Maar de samenwerking moet ook zakelijk zijn. Het is heel goed om dingen integraal op te pakken. Maar ook binnen bepaalde kaders kan je afspraken maken.

RS5: Ik ben het eens met RS6. 1e fase is de risico's samen aanpakken. In ons project is de eerste fase vooral uitwerken en afprijzen. De uitdaging is wel het alloceren, benoemen en beprijzen van de risico's. Het is alleen lastig hoe dit precies te verantwoorden en op te nemen in de prijs. Ook vanuit de opdrachtnemer. Aan de ene kant kun je het wel uitleggen, maar soms is het ook anders uit te leggen. Traditioneel gebeurt dit natuurlijk achter de gesloten voordeur, en dan gaat de kaasschaaf er overheen, valt het een mee en het andere tegen. Uiteindelijk zie je dat de opdrachtnemer dan ook met de kentallen werkt waar wij mee werken.

RS3: Ik vind het mooi dat je dit aankaart, ik herken het heel erg. Bij een traditioneel project namen wij gemiddeld genoegen met een vtw van gemiddelde 23%. De bedoeling van het 2-fasen contract is dat er niet 23% meer betaald wordt. Het idee dat de opdrachtnemer op zoek gaat naar gaten in de overeenkomst dat haal je er helemaal uit. Aan de voorkant veel grotere zekerheid voor de opdrachtgever, maar ook de spelelementen haal je daardoor uit het project en moet je dus de risico's realistischer beprijzen. Ik heb aan tafel gezeten bij directies van en de opdrachtnemer en de opdrachtgever. Als aannemer zeg je dit hebben ze niet goed onderschreven dat is toch een kans voor ons. Dat mechanisme ben je kwijt en dat is een zegen want je kunt je dan focussen op de inhoud. Dat betekent wel dat je aan de voorkant een realistischer beeld hebt.

RS2: dat betekent dat je met iets andere kengetallen moet werken, aan het begin bijvoorbeeld een iets hogere eenheidsprijs.

RS3: het zit in de praktijk helemaal niet in de prijs. Ik heb ook wel grote tenders voor de industrie gedaan. Zo'n kuub beton weten we ook wel wat het kost. Het zit hem uiteindelijk in de aanvliegroute en de risico's die doorslag geven in de prijs. Alle bedrijven kopen dezelfde soort graafmachine, en vallen onder dezelfde cao. Het verschil zit hem in de risico's.

MD: we gaan even door, we hebben nog twee categorieën voordat we naar de prijsvorming gaan. In het kader van de tijd doen we die even tegelijk.

Thema: Het moederbedrijf

RS5: ik vind het een super belangrijk onderwerp en er zitten grote kansen en barrières achter. Je kan er superveel profijt halen als het moederbedrijf aanhaakt. Ook in project overstijgende belangen zoals programma's. Van de andere kant is het ook een enorme bedreiging. Je kunt als projectteam nog zo lekker in een project samenwerken afspraken maken, resilient zijn, open en transparant werken. Aan de andere kant zie je dat er soms gewoon mars-orders zijn en gaat die linksaf of moet er minimaal dat bedrag staan zonder enige onderbouwing. Dan is het dus een onderwerp waar je heel kort op moet zitten.

RS4: Zolang dat al bespreekbaar is. Dat lost het probleem niet op, maar ik heb het ook wel eens gehad en als je dan aan de koffieautomaat tegen elkaar zegt hoe gaan we het oplossen dat scheelt al een hele hoop.

RS5: Ik heb wel is gehad er moest een bepaald percentage winst blijven staan, en dat kon helemaal niet goed onderbouwd worden, maar toen hebben we ook besproken van dat is nou eenmaal zo, en dan kan je door of pak je het ergens anders. Maar hoeft het niet met heel veel wrijving en irritatie.

RS4: Ik zie hier staan moederorganisatie, maar dit geld ook voor de onderaannemers. Dat is ook best nog wel eens lastig. Sommige partijen bij ons zeiden ja we doen niet alleen de engineering. Heel formeel komt de realisatie pas veel later. Dan heb je daar mee te maken. Die bedrijven zeggen ja dat is leuk 2-fasen, maar wil je het of niet. Dus die partijen meekrijgen is belangrijk. Dan kan je de hele samenwerking verprutsen als daar andere contracten onder zitten.

Thema 'samen' werken

MD: Nog even kort over het 'samen' werken. Een aantal dingen zijn al genoemd. Wat zou voor jullie de grote uitdaging zijn?

RS2: heel verschillend per project, we hebben het al gehad over heb je het juiste team aan boord, gebruik je een assessment. Dus zit er heel veel druk op de planning, of juist het budget, dat kan heel veel invloed hebben op waar zit de grootste uitdaging. Vindt het lastig om hem te beantwoorden. Vooral belangrijk wat zijn de grootste kansen.

Bijvoorbeeld de kritische massa, ik heb een post-it opgeschreven met storytelling een soort sneeuwbaleffect creëren. Mensen het podium geven van ja, zo geef je er de juiste invulling aan, dat kan als een olie effect werken in het project.

RS4: Je werkt in verschillende fasen natuurlijk, is misschien ook nog wel eens interessant om te bekijken van hoe je die samenwerking dan doorzet, maar belangrijk is ook om tot in den treurens toe te blijven herhalen wat je belangrijk vindt. Dit is hoe wij werken, dit is ons principe, ook bij nieuwe personen.

RS3: bij ons project hebben we gewoon een standaard samenwerkings methode. De methode Lencioni, met de bekende Pyramide. Is redelijk snel uit te leggen, maar dan ga je ook samen een begrippenkader maken. Met de methode ga je ook uit van het constructieve conflict en dat vinden aannemers lastig die zijn gewend ons naar de mond te praten en dat zit soms de samenwerking enorm in de weg. Dus je moet heel veel aandacht geven in dat constructieve conflict, maar juist om een model te kiezen, dan gaat het gesprek er ook over, dat is echt een aanrader.

Thema prijsvorming

MD: ik zie de sticky note van RS1: waarom met prijselementen werken als je open boek wil werken? Dat is denk ik precies de spanning ook, aan de ene kant wil je als opdrachtgever open en transparant, aan de andere kant misschien een stukje zekerheid hebben.

RS3: mijn generieke oproep is vermeden schijnzekerheid!

MD: kunt u dat wat verder toelichten?

RS3: op het moment dat je onderdelen vastprikt kun je daar niet meer omheen en als die in de weg zitten gaan mensen er toch om heen werken. Maar dingen als prijs kan je zo transparant maken. Wij werken in ons project met de echte kostprijzen en daar zit een accountantsverklaring bij, dan is de hele discussie over. Wij zijn de onthutsende conclusie gekomen dat eigenlijk maar van de hele som maar 15% daarvan beïnvloedbaar is. Grote bedrijven kopen 85% in van hun omzet. En als je dat open en transparant doet als OG ook offertes aanvragen en niet de laagste maar de beste. De discussie gaat dan over doet een kraan 2000 of 2100 kuub op een dag. Dat hebben we besproken met een kostentafel die daar een oordeel over velt. En dan kan het leven eigenlijk redelijk eenvoudig zijn. Dat vergt wel wat durf. Je ziet dat mensen redelijk vasthouden aan zekerheden uit het verleden. Voorbeeld stalen brug gebouwd op de manier hoe houten bruggen gebouwd werden. Dat gevoel bekruipt mij ook met prijsvorming, hoe meer je het los laat wel met het proces om te voorkomen dat je te veel betaald, hoe meer mogelijkheden je hebt.

RS1: wij zien heel verschil in de mechanismes die worden ingebouwd om te komen tot die prijsvorming, waarbij iedereen een financieel plan vraagt in de aanbesteding, een proces om te komen tot de prijsvorming. Dan zegt de 1 het blijft bij dat plan om op een eerlijke manier te komen tot een eerlijke prijs, terwijl andere og's ook nog helemaal prijscomponenten gaan uitvragen en wat wij zien dat bij de 1ste fase de discussie ontstaat van ja, maar een damwand kost toch dit en dat de opdrachtnemer dan zegt, ja maar dat is in deze context. Dat zou een mogelijke verklaring zijn waarom dat soms als werkt tegen wordt aangegeven wordt in de enquête. Opdrachtgevers worstelen ook met het aanbestedingsrecht is zo'n plan dan genoeg om invulling te geven aan de prijscomponent. Daarnaast in de voorfase, we hadden het over de houding bij de opdrachtgever. Dat komt echt al tot uiting in het contract in de uitvraag. Als je daar als OG al een driedubbele kosten check inbouwt 80 kostendrijvers uitvraagt is dat een goede start?

RS3: ik wil voor egoïsme pleiten, je moet als OG jezelf de ruimte gunnen om daar mee om te gaan en je ontneemt jezelf de ruimte als je al die kostendrijvers gaat uitvragen.

RS2: in de beoordelingscommissie was er ook wel discussie over. We moesten aan de OG kant ook wennen. We hebben heel veel maatregelen gekeken hoe het proces transparant ingericht kan worden, maar we hebben nog geen zekerheid over de prijs. Het kan nog steeds dat er iets uitkomt wat we niet verwacht hebben.

RS3: het lastige is dat je dat bij een traditionele aanbesteding nog veel meer hebt. Bij het twee-fasen contract kan je juist aan de voorkant nog sturen en invloed op het ontwerp hebben. Bij de traditionele contracten zoals ik net al zij vonden we 23% heel normaal en moest je gewoon als OG de portemonnee trekken.

RS5: In de wereld waar ik in werk, wat daar ook wel speelt is dat je uit de aanbesteding, of het nou een 1 of een 2 fase is er is geen onbeperkt budget. Er is ook een maximum wat we ervan over hebben. Ik ken ook wel voordelen waarin we zeggen we hebben een goed plan, maar uiteindelijk lijkt het niet te kunnen in de aanbesteding. Soms wordt het gewoon te duur.

RS4: Dan heb je gewoon te veel gevraagd eigenlijk?

RS5: ja precies, maar ook als je een 1 fase contract doet en er komt een oplossing uit die wel kan, heb je dan een eindbedrag, nee, maar wel een bepaalde range waarvan je weet hier gaan we eindigen. +23%, terwijl als je nu een aanbesteding doet met een 1e fase dan weet je niet waar je uit komt.

RS3: ja maar je mag ook stoppen. Na de eerste fase, of wat mij betreft kwart fase, zo moet je het doen. Het eerste wat je gaat doen, is snappen we de scope en dan ga je heel snel met elkaar een raming maken. En als je dan ontdekt we hebben een inschattingsfout gemaakt moet je heel snel stoppen en kost het heel weinig geld.

RS5: verschil waar het bij ons project inzit is dat er al een DO ligt. Worst-case is dat het te duur is en dan?

RS4: dat is het rare, soms kunnen bij een aanbesteding prijzen meevallen en dan denk je yess, lagen prijs, maar eigenlijk heb je een dag feest en daarna gezeur. Dat feestje heb je nu niet en dat is intern wel een discussie. Bij wijzen van spreken zet je je risico pot nu al in en hou je wat over. Anders kwam die altijd aan het einde met de meer werken. En dat was bij onze financiële mannen ook soms wel een discussie.

RS5: Helemaal eens, dat is ook hoe je acteert, ik heb wel eens in een project meegemaakt dat we die aanbesteding dag feest hadden en dat de dag erna de projectdirecteur aankwam van ja, we hebben wel zoveel miljoen extra nodig. We hadden dat geld ook wel, maar hoe ga je daar slim mee om.

RS1: hebben jullie ook je eigen referentieraming meegestuurd in de aanbesteding?

MD: ik zie iedereen ja knikken.

RS1: dit kan natuurlijk ook helpen voor een early warning.

RS3: Ik heb wel in gesprekken ook gehoord dat bepaalde oplossingen die wij kozen niet de goedkoopste waren, dat is mooi om te horen.
RS1: is <u>dat volgens jullie gezien ook essentieel</u>
RS4: Ja, je moet het toch doen, als je de transparantie aan die kant vraagt en wil zeggen dat vind ik hoog of laag, dan moet je daar toch je onderbouwing voor geven.

RS3: ja en ook voor de opdrachtnemer, is het een project van 2 miljard of 200 miljoen. Hoe meer je deelt hoe meer baat je erbij hebt.

RS4: de discussie gaat idd heel vaak niet over prijs, maar over <u>wat er allemaal in die prijs zit.</u>
MD: dus transparantie gaat beide kanten op, en dat geldt ook al in de aanbesteding.

RS4: dat vinden wij ook spannend, OG's zeggen snel over prijs ja dat is te hoog, maar eigenlijk kan je dat niet zeggen als je niet <u>je eigen getallen laat zien.</u>

Thema gezamenlijke identiteit.

RS3: Als je lid bent van een sportvereniging dan heb je ook hetzelfde shirt aan. Dus heel belangrijk.

RS4: bij ons ging de discussie dan over ja welke kleur is dan het ondergoed.

RS6: <u>maar heb je dat eigenlijk niet nodig in ieder groot project</u>? Misschien kan dat wel een spin-off zijn van de twee-fasen projecten dat je in andere projecten daar ook aandacht aan gaat besteden.

RS3: <u>Een goede projectmanager creëert zijn eigen werkelijkheid</u>. Als je van OG en ON de goeie mensen hebt is het binnen een week en <u>team of het wordt nooit meer wat.</u>

RS1: wat ik dan lastig vind in zo'n UAV-GC contract is wat daar vaak wordt gedaan is de opdrachtnemer stelt allerlei producten op, dat wordt gecontroleerd/getoetst. Die papierwinkel wordt heen en weer geschoven en het is echt een soort beoordeling, in zo'n geïntegreerd team stel je echt samen die producten op. Hoe kijken jullie daar naar zo'n samenwerking in UAV-GC.

RS6: <u>UAV-GC is maar een kader he, wat jij zegt toetsen, accepteren etc. is iets wat je zelf kiest als OG. Dat kan je loslaten. Dat hoeft helemaal niet van toepassing te verklaren in de 1e fase. Het gaat erom dat het ontwerp dat eruit komt de verantwoordelijkheid is van de opdrachtnemer. Maar als de OG-dingen kan meehelpen kunnen we natuurlijk prima afspreken laat ons dat maar doen</u>. Als je daar open en transparant over bent heb je daar best wat ruimte in.

RS1: dan is het voor mensen die altijd in dat kader gewerkt hebben goed om daar duidelijk over te <u>communiceren</u>.

RS3: voor ons is de toets van de opdrachtnemer zwaarder dan die van de opdrachtgever. Ondertussen doen wij ook mee met die review.

Appendix D3: Focus group minutes [Contractor]

Presentatie

De focusgroep wordt gestart met een presentatie waarin de belangrijkste principes en werkmethoden worden geïntroduceerd. Hierin worden de definities zoals gebruikt in het onderzoek gepresenteerd. En het schema zoals te vinden in hoofdstuk 6 wordt geïntroduceerd. Dit schema is besproken met behulp van Mural, het overzicht hiervan te vinden in de bijlage.

Discussie werkmethoden

De respondenten krijgen de kans om kansen en barrières aan te geven voor het implementeren de werkmethoden.

Thema: Organiseer een project opstart

RS4: ik ben mijn hele carrière al betrokken vanuit uitvoering in o.a. RAW/echte vecht contracten. Bij PSU's zie je dat eigenlijk iedereen daar met elkaar wil samenwerken. Aan het einde van zo'n PSU is iedereen ook enthousiast. Het is belangrijk om met elkaar ook samen op een locatie te werken.

Je ziet dat het verschil er zit in wanneer mensen met elkaar matchen. Als de match er is tussen de mensen is er bijna niks wat het project uit de richting kan drukken. Je ziet steeds vaker in twee-fasen contracten dat er heel vroeg aan de voorkant al een interview gedaan wordt, waar ook iedereen op z'n best natuurlijk is, voor welke personen er op een project worden gezet. Maar de kans om iemand te wisselen is heel klein in projecten. Hou die mogelijkheid ook open, als de samenwerking niet lekker loop moet het gewoon mogelijk zijn om te zeggen deze mensen wisselen we.

RS1: Ik ben wel benieuwd hoe we dit dan moeten organiseren, dat je het inregelt dat er een mogelijkheid is om te wisselen. Ik kan me voorstellen dat het in de meeste projecten wel mogelijk is om te wisselen als het niet goed gaat, maar omdat het niet standaard is dat het eigenlijk nooit gebeurt.

RS4: Stadsdijken heeft met een assessments gewerkt is ook niet een garantie voor succes, maar je ziet dat ook daar heel selectief gekeken is naar wie ze willen, dat er echt specifiek naar mensen is gekeken naar wie ze willen, ook selectief naar mensen gevraagd. Op het moment dat twee projectmanagers elkaar gevonden hebben weten ze vaak wel welke mensen ze moeten kiezen uit hun organisatie. Ik zou ook niet precies weten hoe we dit kunnen oplossen, maar ik heb wel gezien dat mensen soort van gevangen kunnen zitten in het project doordat ze in de emvi criteria zijn op gegeven en het gevoel heerst dan dat zij gewoon door moeten.

RS5: Ik herken dat zeker, wat ik belangrijk vind is om de mogelijkheid iig open te houden. Ga niet in het contract zetten dat het ipm team niet meer mag wisselen. In ons project is het zo geregeld dat als we wisselen worden er twee kandidaten voor gesteld waar de andere partij dan uit mag kiezen, maar ook dat is geen garantie voor succes.

RS1: als we de garantie voor succes maar konden vinden! Ik snap waar jullie vandaan komen, maar ik heb zelf wel het gevoel dat iedereen in staat is om goed samen te werken. Op mijn project hadden we een aantal sleutelfiguren die dit echt goed konden, ook op basis van het twee-fasen model, op basis van vertrouwen. Zij wisten dit zo goed uit te spreiden in het project, dat eigenlijk als deze sleutelfiguren er niet waren geweest dat die andere ook ruzie hadden kunnen maken. Niet iedereen is even goed in voelsprieten, samenwerking etc. Sommige mensen moeten ook geholpen worden in de nieuwe samenwerkingsvorm.

RS2: Dat is gewoon basis antropologie, je hebt een aantal totems nodig in je project, iedereen kijkt naar de projectmanagers, naar de leiders van het project, als zij niet in staat zijn om samen te werken gaan zij dat ook niet doen. Daarnaast denk ik dat het een utopie is dat de teams niet gaan wisselen, er gebeurt van alles. Je kan beter kijken hoe de samenwerking vorm te geven, op hun plek blijven.

MD: Ik zie hier staan de No/go wordt gebruikt worden om druk te zetten.

RS4: Dat heeft te maken met vertrouwen. In ons project dat noemen we het volwassenheidsmodel hebben we gedefinieerd waar we willen staan op het moment dat we naar de volgende fase toe gaan. Als dat niet is gebaseerd is op vertrouwen kun je elkaar enorm onder druk zetten, van we moeten aan het eind van deze fase daar staan. Het stickertje dat naast mij staat. Tijdsdruk maakt overgangen vloeibaar is vaak werkelijkheid. Bijvoorbeeld we hebben nog niet alle archeologische hotspots op het project volledig in kaart, maar de twee die we nog moeten zit in het laatste deel van de uitvoering. Als je dan een hele harde no/go hebt van: voor de moeten alle onderzoek en vrijgaven gedaan zijn kun je elkaar daar behoorlijk mee in de nesten helpen. Er is 1 moment waarop de go no go hard moet zijn dat is de overgang naar de realisatie. Die kun je niet aan tornen, dan kan de samenwerking nog zo goed zijn. In de planontwikkelingsfase, VO, DO, etc. moet je ze vloeibaar houden, in de aanbestedingstukken zou ik alleen de start uitvoering opnemen.

RS1: mee eens

MD: Merk op dat de andere instemmend mee knikken.

Thema: Regelmatige overleggen

MD: Ik lees geen vergadercultuur, toch werd het belangrijk gevonden om wel te vergaderen.

RS1: Ik ben het er wel mee eens hoor, er is een verschil tussen vergaderingen en overleggen. Vergaderingen is een soort keurslijf en ik weet niet of een gesprek dan echt naar boven komt, het is dan een soort moetje. In ons project hadden we in het begin te veel vergaderingen, toen heb ik er een aantal uit gegooid, en toen merkte je dat het een stuk beter ging.

RS3: aan onze kant is het, het tegenovergestelde. Waarbij je zag dat we het in het begin losgelaten hebben: op het moment dat we zaken hebben nemen we contact op met de opdrachtgever en plannen we daar een overleg voor in. In de praktijk zag je toch, dat we veel gingen bedenken wat het had kunnen zijn. Ik heb het idee dat door een vaste structuur in overleggen te creëren het gedrag waarin de ON zelf gaat bedenken wat er precies bedoelt is iets meer voor bent.

RS4: Dat is ook een stukje oude cultuur: je durft niet aan de aannemer te vragen wat die eigenlijk bedoelt, want hij heeft een goede aannemer uitgekozen dus dat moet die maar weten. De generatie van de moderator is de eerste generatie die niet meer met de oude-cultuur is opgevoed. Ik maak de omslag nog mee. De generatie voor mij, en dat is ook het risico dat zijn nu vaak de projectdirecteuren, die zie je nu vaak nog hun organisatie op de oude wijze in richten. De volgende generatie zou het straks zonder die oude cultuur kunnen doen.

RS3: Ik wijt het ook wel aan ons als techneuten. Wij vinden het veel te mooi om er zelf in te duiken in plaatst van de vraag te stellen, dus ja een stukje cultuur, maar het zit hem ook in ons als techneuten.

RS1: Ja, moet zeggen dat in ons project we best hard moesten trekken om concepten door gestuurd te krijgen, toen dat er eenmaal inzat dat het allemaal niet af hoeft en dat we dan juist samen verder komen. Dit is dan wel vanuit de OG, excuus. Wij merkten dat als we dan met de externe beheerders partij gingen praten met die concepten, dat zij heel erg zeiden van waarom is dit nog niet af. We merkten dat wij dan ook naar hen moesten communiceren, dat we juist samen de gaten wilde invullen.

RS3: ik vind het mooi wat je noemt, we kunnen als twee partijen heel lang praten met z'n allen, maar het is ook goed om het heel concreet te maken een eerste aanzet of concept, zodat we echt over iets concreets kunnen bespreken.

RS1: eens

RS3: <u>maak het maar concreet ook al weten we nog niet alles.</u>
RS1: in ons project noemde we <u>dat dan werksessies,</u> dat is een ander soort vorm van vergaderen, dan ga je meer met elkaar aan de slag. Dus dat is misschien een werkmethode waarin je echt daadwerkelijk gezamenlijk aan de slag gaat.

MD: Het detail is hierin ook wel het wordt efficiënt als ik dat zo hoor. Er moet aan de ene kant niet te veel vergaderd worden, maar aan de andere kant wel een vaste structuur zijn. Is er nog iets waar iemand op wil reageren?

RS1: Het <u>informele overleg,</u> omdat ik dat zelf wel een spannende vindt. Je kan zeggen hier komt alles op tafel, je kan afspreken geen verslagen te maken enz., maar als er geacteerd wordt door de OG op dingen die besproken worden zoals vertragingen enz. Dan kan je overleg daarna nergens meer over gaan.

RS5: Wij noemen dat het <u>Benen op tafel overleg (BOT).</u> Het is wel heel herkenbaar wat je schetst, <u>je moet niet in de stand vliegen dat je gelijk gaat acteren</u>. Wat wij hebben is een overleg tussen beide project en contractmanager, heel informeel, we hebben daarin heel duidelijk gezegd, stel twee mensen kunnen niet samenwerken, <u>het BOT is dan echt het laatste redmiddel</u>, <u>daarvoor moet alle andere dingen al wel geprobeerd zijn. Altijd eerst terug weer in het team, anders ga je te snel weer daar oplossingen zoeken.</u>

RS2: Jullie hebben dat Bot geïntroduceerd omdat er veel formele overleggen waren, maar jullie hadden juist behoefte aan een informeel overleg.
RS5: Ja dat klopt, er was behoefte aan <u>een meer strategisch overleg</u>, wat speelt er in het team, dus daarom is dat overleg geïnitieerd. Er zij overgingen wel <u>aantekeningen in dat overleg die gedeeld worden met beide volledige teams, iedereen weet gewoon wat daar besproken wordt</u>. Gevoeligheden moeten dan eventueel niet inde notulen, en er komen ook niet echt geheimen op tafel daar. Dit gebeurt gewoon via e-mail, dus <u>geen officieel verslag.</u>

MD: Ik hoor iets over informatie-delen, mooi bruggetje om door te gaan naar het volgend thema.

Thema: informatievoorziening

MD: Ik kijk er even snel door heen, ik lees risico's onderdeel van het contract, GIS, iemand die wil reageren?

RS3: stukje praktijkervaring, in ons project wil de OG niet alleen de Definitieve documenten zien, maar ook gevoel houden bij de tussenstappen, wij hebben dus ook echt <u>contactuele voorwaarden die ons verplichten om de mensen van OG echt toegang te geven tot ons document mgt. Systeem</u> en Relatics systeem. Je merkt dat dat wel heel veel discussie oplevert. De angst als aannemer is dat dat de OG daar op een verkeerde manier op gaat acteren, omdat de informatie die daarin staat vaak in een bepaalde context staat, maar die niet daar te vinden is. Daar hebben we wel goede gesprekken over gehad. Nu <u>hebben een beperkt aantal mensen van de OG-toegang, en hebben de afspraak gemaakt dat op het moment dat er vragen zijn, dat deze dan eerst aan ons gesteld worden</u>, en dat er niet op geacteerd gaat worden of er conclusies getrokken worden. Dit is wel een hele gevoelige moet ik zeggen.

RS4: ik wil me daarbij aan sluiten, wat ik meegemaakt heb, dat is dan geen twee-fasen contract maar in een ander project. Daar werkte OG en on niet samen in 1 systeem, maar daar deelde men wel documenten met elkaar via een document mgt. systeem. Dat werd een draak van een systeem. Toen hebben we de OG-toegang gegeven tot het Relatics systeem en die knalde er direct 3 system engineers bovenop. Dit resulteerde in enorme micromanaging vanuit de OG op missende stukjes etc. Dat risico loop je wel.

RS1: Vanuit OG ervaring: wij hadden ook toegang tot het systeem, en je zag eigenlijk dat het alleen gebruikt werd voor de concepten, dat hing ook een beetje samen met de cultuur denk ik. Heb jullie ook voorbeelden van waar het wel goed ging, of zou je echt nog iets af moeten spreken, bijvoorbeeld alleen die mappen.

RS3: daar is mijn ervaring nu nog te pril voor, in mijn vorige project werd het nauwelijks gebruikt. Zaten ook in een keet, en je zag dat daar de cultuur was om gewoon naar elkaar toe te lopen.

RS2: bij mijn vorige project in de engineeringsfase is met een documentsysteem gewerkt. Dat ging eigenlijk heel goed, wel de nodige aandacht nodig, want de mens is de mens, en is toch ook wel geneigd om in eigen archieven met concepten en dergelijke te gaan werken.

RS4: Dat is om dat er nog niemand is die een mgt systeem heeft bedacht dat en waterdicht en gebruiksvriendelijk is. In ons project hele positieve ervaringen. Ik had GIS (Geo informatiesysteem) opgeschreven. Dat is ook gekoppeld met het BIM-model. Dat heeft een half jaar aanlooptijd gekost, maar nu is het, het belangrijkste communicatiemodel binnen ons team. Wij hebben de regel als het niet in GIS staat, bestaat het niet. Dat werkt door in de planning, risicoregister etc.

RS2: Ik heb ooit 1 project gedaan in Europa die echt alles in BIM heeft gedaan, in Nederland gebruiken we BIM nog niet zo veel.

MD: nog een hoop te innoveren dus, we gaan dus even verder.

Thema: Het moederbedrijf

MD: Het betrekken van het moederbedrijf wordt in de literatuur aangekaart als belangrijk voor allianties bijvoorbeeld. Ik ben benieuwd wat jullie ervan vinden.

RS4: Ben wel benieuwd wie opgeschreven heeft: "belangen opdrachtgever en opdrachtnemer zullen nooit hetzelfde zijn" in cynicus als ik herkend iets waar ik zelfs van schrik.

RS2: dat was ik, je kunt een gezamenlijk projectbelang afspreken, maar dan nog, is het zo dat de ON een commercieel belang heeft, maar de belangen zullen nooit hetzelfde zijn. Overheid heeft sociaal of politiek belang. Dat maakt dat de samenwerking ingewikkeld is.

RS4: Het grappige is dat op ons project het financiële en de verschillende belangen zijn weggevallen doordat de OG geen oneindige bak met geld achter zich heeft staan. Omdat het project en het risico op meerwerk zo groot is kan de OG dat in dit project niet dragen. Dit zorgt ervoor dat in onze PSU. Het belang is daardoor hetzelfde in de eerste fase. In de eerste fase kun je 1 belang maken.

RS2: Ik weet het nog niet. Je kan wel een gezamenlijke visie of gezamenlijk doel met het project maken, echter als je nadenkt over wat je gaat doen met elkaar prima, maar hoe je het gaat doen daar kan variatie in zitten.

MD: ik grijp kort even in het financiële deel komen we zo nog even op terug. In het kader van de tijd gaan we nu ook even door.

Thema 'Samen' werken

RS1: Dan grijp ik even terug op waar we het net over hebben. Ik ben het er mee eens dat er een verschil in belang altijd is, de een maakt iets en dan ander koopt iets, maar je kan het belang combineren. Door samen op locatie te zitten en veel belang te hechten aan de samenwerking kan je de focus op het gezamenlijke belang houden, dan komt vaak die verschillende belangen ook wel goed. Dus een gezamenlijk locatie draag heel erg bij.

RS2: eens
RS3: Vanuit mijn vorige project heb ik ook de ervaring dat je elkaar in de loop van het project naar elkaar toe zag groeien. Maar de belangen blijven verschillend.
MD: ik zie nog een opmerking: pas op dat hetgeen in-crowd dingetje wordt, wat bedoelt u daar mee?

RS4: Hij slaat aan op wat iemand anders heeft aangegeven. De teambuildings, borrels etc. je merkt dat omgevingsmanagement en dat soort dingen grootschalig vertegenwoordigd zijn. De techneuten en uitvoerders zijn daar eigenlijk nooit en dan wordt het zo'n in-crowd dingetje. Een aantal mensen leren elkaar daar goed kennen, maar dan krijg je echt het zij hebben ook weer een feestje door de rest van de organisatie.

MD: Dus misschien zou je de informele activiteiten verplicht moeten maken?

RS3: Nou vooral zoek activiteiten die veel meer aansluiten bij de jongens, zet een frietkraam op het bouwterrein neer in plaats van de borrel.

MD: of een project bezoek?

RS4: maak hem andersom: laat de familie van iedereen op het project, daar win je echt gigantisch veel mee.

Thema: Prijsvorming

MD: Ik stel voor dat iedereen snel een opmerking opschrijft en dan kunnen we weer op elkaar reageren. Ik zie dat een aantal van jullie aangeven, open boek is lastig om mee te werken, ligt misschien ook aan het oude gedrag waar we het eerder over hadden. Vanuit jullie ervaring, wat zouden jullie zeggen hoe leggen je het beste in. Is open boek de 'Holy grail'?

RS4: Een openboekhouding neemt heel veel andere randvoorwaarden weg. Ik wil hem bespreken op basis van een voorbeeld. In ons project: Waren aan het werk met een kering die twee bedrijven buitendijks laten zitten. Tijdens een variantenstudie, bleek dat we de bedrijven binnendijks konden laten liggen. Op het moment dat er dan al een gedetailleerde kostenraming is, of je begint opnieuw weer met het ontwerp, dan krijg je de discussie: waar gaat dan het geld naartoe. Nu konden we met de bedrijven tot een oplossing komen die voor OG en ON makkelijk te realiseren was. Als je van tevoren te veel vastlegt, bijvoorbeeld prijs van staal en damwand, en aan de andere kant was het een kleidijk geweest, dan hadden we waarschijnlijk gewoon met de kleidijk verder gegaan, omdat dat minder risico met zich meebracht. Die prikkel was er nu helemaal uit. Dat kon je relatief eenvoudig nu 1 op 1 met de OG bespreken en die kon dat weer onderbouwt communiceren naar de twee bedrijven. Dit was alleen mogelijk doordat we met open boek werkte.

RS5 ik ken ook een voorbeeld waar het tegen kan werken. In mijn project moest het tarief van de stagiair zelfs tot in detail onderbouwt worden. Het is zeker niet zaligmakend, kan veel gedoe wegnemen, transparantie bieden en daardoor vertrouwen kweken, maar zorg dat je ook pragmatisch blijft en daar ook afspraken over maakt. De spagaat waar de OG al snel in terecht komt is dat het altijd rechtmatig moet zijn vanwege het publieke karakter van OG.

RS1: Ja dat herken ik ook wel en discussies hebben ook eigenlijk altijd daar mee te maken. Volgens mij doe of vraag je een openboek omdat het vertrouwen geeft. Als kanttekening daarbij vertrouwen geef je en dat krijg je niet. Als je aan de ene kant open boek vraagt, maar aan als opdrachtgever jezelf erboven zet, van laat maar zien dat je alles op orde hebt. Als je ook opener communiceert over die verantwoording die je nodig hebt dan kom je ook dichter tot elkaar.

MD: dus het werkt twee kanten op.

RS1: nou je moet zorgen dat het twee kanten op werkt. Niet alleen de ON moet open en transparant zijn.

RS2: Daar ben ik het mee eens. Daar komt ook mijn post-it naar voren: De achterban moet vaak nog wennen aan het openboek werken. Ook die moet je meekrijgen. Elke laag in de organisatie van de OG moet hieraan meewerken.

MD: ik zie veel kinkkende hoofden, dus dit is denk ik een belangrijk punt.

Thema Gezamenlijke identiteit

RS1: volgens mij slaat het heel erg aan bij wat we daarnet zeiden. Je hebt een gezamenlijk belang je wilt iets mooi maken. Die gezamenlijke identiteit is, hoe sterker het gezamenlijk belang en hoe sterker het project.

RS4: Gezamenlijke identiteit is ook belangrijk naar extern toe. Naar je stakeholders. Voorbeeld ons project: het maakt een fundamenteel verschil als je als aannemer in gesprek bent met externe partijen als dat je dat als volledig project doet. Wij zien dit voortkomen dat er gezegd wordt: De OG partij heeft dit zo goed gedaan, terwijl in werkelijkheid er niemand van de OG bij de aanvraag van de desbetreffende vergunning betrokken was. Dat “ontspoorde” bij ons zelfs dusdanig dat toen er iemand aangenomen moest worden aan de OG dat ik, ingehuurd door de ON in de sollicitatiecommissie daarvan terecht kwam. Dus zo ontstond er een gezamenlijke identiteit en dat werkt.

RS3: ik kan alleen maar aanvullen wat RS1 ook aangeeft.

MD: ik zie ook staan geen gespiegelde IPM-teams, maar 1 integraal team, dat zou vanuit jullie wel een aanbeveling zijn?
*er wordt bevestigend geknikt.

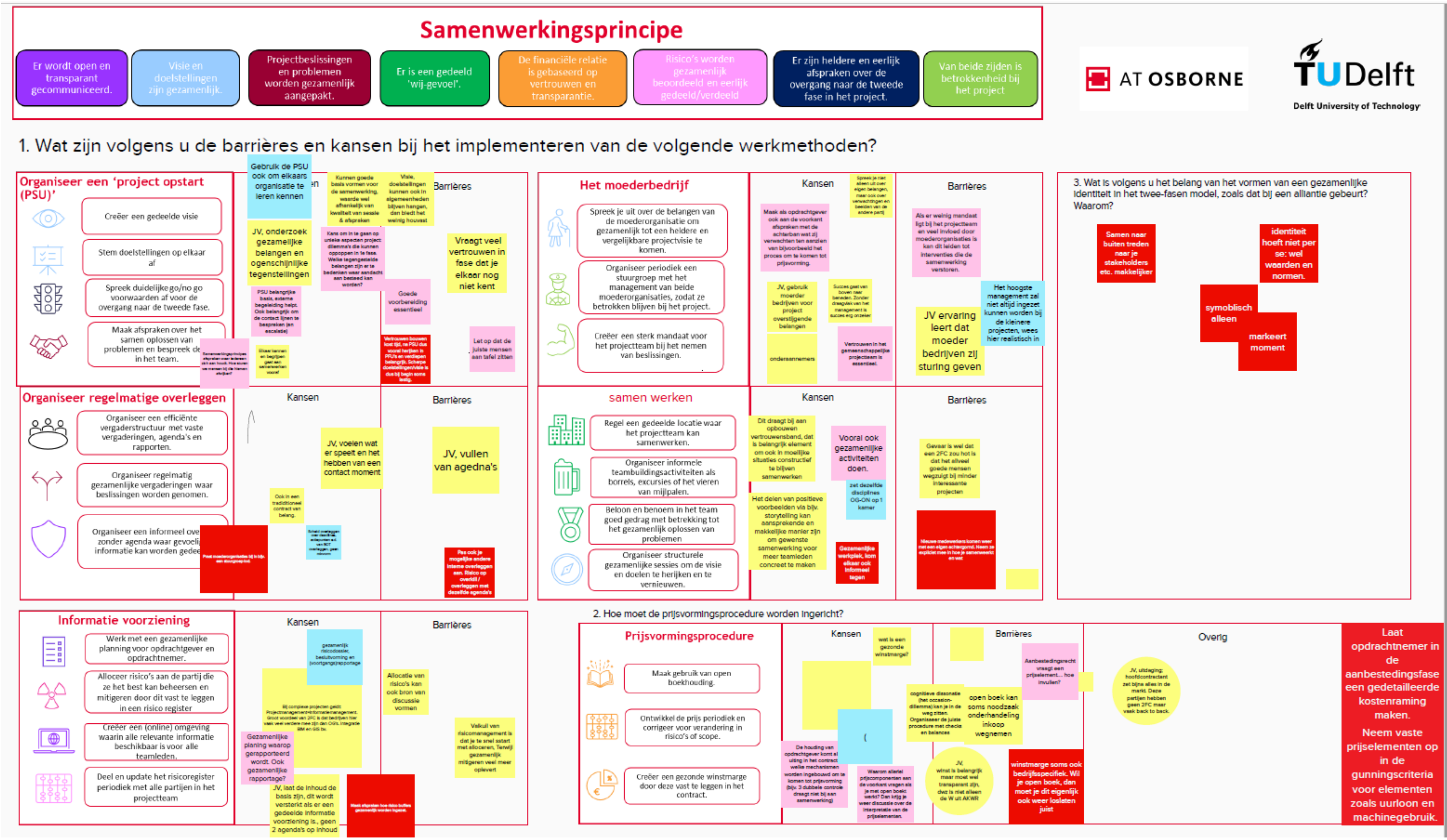
RS4: en dan ook vanuit de beheerorganisatie alvast mensen in dat team dat helpt ook heel erg.
RS1: die vind ik ook heel belangrijk. Die dubbelrollen op technische inhoudelijk vak is wel heel goed. Wat ik verder nog wilde zeggen, is dat het in ons project best goed gelukt is. Op een gegeven moment gaven mensen aan ik heb echt het gevoel dat we gewoon collega’s zijn. Als je dat weet te creëren met elkaar krijg je die gezamenlijk identiteit en het gezamenlijke belang.

RS5: bij ons project streven we dit nog steeds na, het loopt af en toe wat stroefjes. Ik kan alleen maar beamen dat is waar je naar wil streven. Maar dat gaat niet altijd vanzelf, en daar kom je waar we in het begin over hadden. Goeie PSU, goeie opvolging, afspraken. Het vuurtje moet je altijd blijven voeden.

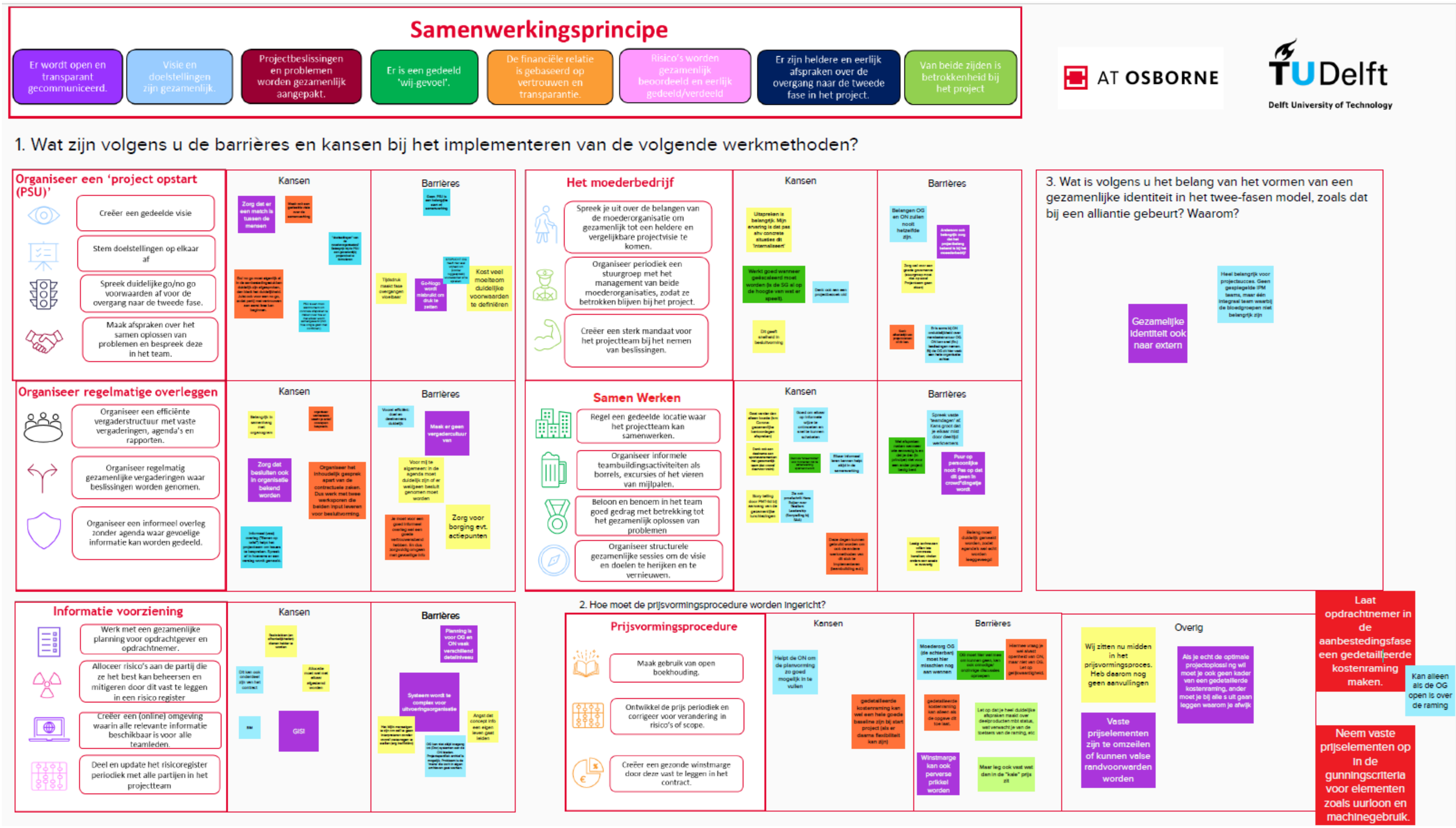
RS2: De samenwerking is eigenlijk 1 van de projectdoelen en die moet je ook zo zien, daar moet je dus aandacht aan besteden.

RS5: een teamcoach is een manier, helpt zeker, maar als je als beide teams bij elkaar zit dan is het best lastig om boven de materie uit te stijgen soms. Een onafhankelijke gespreksleider die daar ook in getraind is werkt soms best goed.

Appendix D4: Collaborative tool result [Client]



Appendix D5: Collaborative tool result [Contractor]



Appendix E Survey

Appendix E1: invitation to the survey

Wilt u bijdragen aan het goed inrichten van de eerste fase van het twee-fasen model, zodat de samenwerking tussen opdrachtgever en opdrachtnemer optimaal benut kan worden?

Wat houdt mijn onderzoeksproject in?

Mijn naam is Simon Klein en ik studeer momenteel af bij de TU-Delft in samenwerking met AT-Osborne op het gebied van **samenwerking tussen de opdrachtgever en de opdrachtnemer in twee-fase projecten**. Voor mijn onderzoek ben ik opzoek naar praktijkervaringen in deze samenwerking.

Mijn onderzoek focust zicht op samenwerkingsprincipes en bijbehorende werkmethoden voor een verbeterde samenwerking in specifiek de 1e fase. Het doel van het onderzoek is om vanuit deze samenwerkingsprincipes en werkmethoden een aantal voorstellen voor verbetering van de samenwerking te doen. Daarnaast zal ook gekeken worden naar welke werkmethoden juist niet bijdragen of de samenwerking zelfs tegenwerken. De onderzoeksvraag luidt:

Hoe zou de 1e fase van het twee fasen model ontworpen moeten worden om de samenwerking te bevorderen?

De samenwerkingsprincipes en werkmethoden die ik aan u wil voorleggen zijn verzameld vanuit de literatuur. Om ervaringen vanuit de praktijk toe te voegen heb ik een enquête gemaakt. De enquête wordt in meerdere projecten uitgezet om feedback op de voorgestelde principes en methoden te krijgen. In het tweede deel van mijn onderzoek organiseer ik een focusgroep met meerdere mensen uit de praktijk waarin we de voorstellen voor verbetering van de samenwerking in de 1e fase bespreken. Ik vraag in de enquête of het u leuk lijkt om hieraan mee te werken.

Figuur 1: Overzicht 2-fasen model

Uw bijdrage

Voor de enquête ben ik op zoek naar 'ervaringsdeskundigen'. Dit betekent dat u geen expert hoeft te zijn op het gebied van samenwerking en twee-fasen modellen, maar wel op een project gewerkt moet hebben in die sfeer, waarbij u inzicht heeft gehad op de manier van samenwerken tussen de opdrachtgever en opdrachtnemer. De interesse ligt in dit geval in het verzamelen van de 'How should' ervaringen. Hoe zou vanuit uw ervaring in de projecten de 1e fase ingericht moeten worden?

Praktisch betekent dit dat ik opzoek ben naar een goede mix tussen opdrachtnemer en opdrachtgever. De deelname aan de survey duurt ongeveer een half uur en de survey wordt eind november verstuurt. U heeft dan 2 weken de tijd om deze in te vullen.

De resultaten van het onderzoek zijn een in literatuur gegrond advies voor de inrichting van de 1e fase in het twee fasen model. Deze resultaten van verschillende partijen worden geanonimiseerd met alle deelnemers gedeeld en een overzichtelijke lijst met do's en dont's wordt bijgesloten.

Appendix E2: Online survey

Gegevens Respondenten

Beste respondent,
Alvast bedankt voor het invullen van deze enquête.
Allereerst wil ik u vragen kort aan te geven wie u bent en wat uw betrokkenheid met het twee-fasen model is.

* 1. Wat is uw naam?

* 2. Wat is uw huidige functie?

* 3. In welk project bent u op het moment actief?

* 4. Hoe zou u uw betrokkenheid bij het twee fasen model omschrijven?

- [ ] Ik ben onderdeel geweest van een alliantie project.
- [ ] Ik ben onderdeel geweest van een bouwteam project.
- [ ] Ik ben onderdeel geweest van een project met een twee-fasen model.
- [ ] Ik ben betrokken geweest bij het ontwerp van een twee-fasen model.
- [ ] Ik ben betrokken geweest bij de aanbesteding van een twee-fasen model.
- [ ] Anders, namelijk:

* 5. Mijn functie(s)hierbij was/waren:

* 6. Hoeveel jaar ervaring heeft u met het werken in een twee-fasen model?
U mag deze vraag breed interpreteren: Meewerken aan het ontwerp/ aanbesteding, werken in een bouwteam/alliantie of werken in een twee-fasen model

* 7. Ik was/ben werkzaam voor

- [ ] De opdrachtgever
- [ ] De opdrachtnemer
- [ ] Anders, namelijk:

Algemene introductie twee-fasen model

Het twee-fasen model betreft een model waarbij een overeenkomst wordt gesloten met een opdrachtnemer voor de ontwerpfase* (eerste fase) en waar dezelfde partij het eerste recht heeft op de uitvoering van het project in de tweede fase. Deze tweede fase gaat in, nadat een duidelijk go/no go moment heeft plaatsgevonden. Een goede samenwerking in de eerst fase draagt bij aan het succesvol doorlopen van de projectfasen.

Dit onderzoek en de enquête focussen zich dan ook op de samenwerking tussen opdrachtgever en opdrachtnemer in deze eerste fase.

De eerste fase wordt mede gevormd door aspecten uit de aanbesteding, daarom zult u zien dat een aantal principes en werkmethoden zich ook op de aanbestedingsfase richten.

*de ontwerpfase kan ook een planvoorbereiding of doorgrondingsfase bevatten.

* 8. De 3 grootste uitdagingen/nadelen van het samenwerken in een twee-fasen model zijn:

* 9. De 3 grootste voordelen van het samenwerken in een twee-fasen model zijn:

Samenwerkingsprincipes

Principes zijn de algemene regels die gelden in een project. Dit kunnen formele of ongeschreven regels zijn.
De samenwerkingsprincipes zijn principes die belangrijk geacht worden voor een goede samenwerking tussen de opdrachtgever en opdrachtnemer in het project.
De principes hieronder zijn verzameld vanuit de literatuur. U kunt hieronder aangeven hoe belangrijk deze principes zijn voor de samenwerking, daarnaast heeft u de optie om zelf principes toe te voegen.

* 10. Hoe belangrijk zijn de volgende samenwerkingsprincipes?

U kunt de principes slepen of naar hun belang nummeren.
1=meest belangrijk, 14= minst belangrijk

Er is een gezamenlijke visie en doelstellingen.

Betrokkenen worden vroeg in het proces betrokken.

Risico's worden gezamenlijk beoordeeld en eerlijk gedeeld/verdeeld.

Er wordt open en transparant gecommuniceerd.

Projectbeslissingen en problemen worden gezamenlijk aangepakt.

Conflicten worden constructief afgehandeld.

Er is een no blame cultuur.

Er is een gedeeld gevoel 'wij-gevoel'.

De opdrachtnemer wordt geselecteerd op basis van zijn samenwerkingscompetenties.

De financiële relatie is gebaseerd op vertrouwen en transparantie.

Van beide zijden is betrokkenheid bij het project.

Er zijn heldere en eerlijk afspraken over de overgang naar de tweede fase in het project.

Er is focus op het doorvoeren van verbetering in het project.

Er is aandacht voor het halen van de planningsdoelen.

* 11. Zijn er principes die missen in deze lijst? zo ja, welke?

Werkmethoden

Per samenwerkingsprincipe zijn verschillende werkmethoden te bedenken die een bijdrage kunnen leveren aan het bereiken van het principe. Hieronder vindt u telkens een samenwerkingsprincipe met een aantal voorgestelde werkmethoden verzameld vanuit de literatuur. U wordt gevraagd deze werkmethoden te scoren van ‘onbelangrijk’ tot ‘heel belangrijk’. Indien u van mening bent dat de werkmethode de samenwerking of het principe juist tégen werkt, kunt u de optie ‘werkt tegen’ aanvinken. Verder kunt u bij elk principe aangeven welke werkmethoden u eventueel gemist heeft, of in de praktijk bent tegen gekomen en bijdraagt aan het behalen van het principe.

* 12. Er is een gezamenlijke visie en doelstellingen.

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Creëer een gedeelde visie aan het begin van het project door middel van een workshop/visiedag.						
Stem doelstellingen aan het begin van het project met elkaar af door middel van een workshop/visiedag.						
Spreek je uit over de belangen van de moeder-organisatie om gezamenlijk tot een heldere en vergelijkbare projectvisie te komen.						
Organiseer structurele gezamenlijke sessies om de visie en doelen te herijken en vernieuwen.						
Betrek een onafhankelijke facilitator voor het opstellen van een gezamenlijke visie en doelstellingen.						
Betrek alle stakeholders van het project bij het vaststellen van visie en doelen.						

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

* 13. Betrokkenen worden vroeg in het proces betrokken.

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Planning, scope en prestatiedoelen worden door middel van een dialoog met de opdrachtnemer tijdens de aanbestedingsfase besproken.						
Voer een uitgebreide project opstart (PSU) uit aan het begin van de eerste fase van de samenwerking.						
Organiseer bij de overgang naar de volgende fasen een project follow up (PFU).						
Leg samenwerkingsafspraken gezamenlijk vast in een formeel document.						
Leg de filosofie van het twee-fasen model uit aan de projectteamleden aan het begin van het project en bij nieuwe project teamleden.						

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

* 14. Risico's worden gezamenlijk beoordeeld en eerlijk gedeeld/verdeeld.

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Identificeer risico's vroegtijdig tijdens dialoogfase en aanbesteding.						
Organiseer gezamenlijke risico beoordelingsworkshops in de eerste fase van de samenwerking.						
Alloceer risico's aan de partij die ze het best kan beheersen en mitigeren door dit vast te leggen in een risico register.						
Deel risico's en beloningen collectief door een gedeelde risicopot te implementeren.						
Deel en update periodiek een risicoregister dat gedeeld wordt met alle partijen binnen het projectteam.						

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

* 15. Er wordt open en transparant gecommuniceerd.

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Organiseer een informeel overleg zonder agenda waar gevoelige informatie kan worden gedeeld.	○	○	○	○	○	○
Werk met een gezamenlijke planning voor opdrachtgever en opdrachtnemer.	○	○	○	○	○	○
Organiseer een efficiënte vergaderstructuur met vaste overleggen, agenda's en verslagen.	○	○	○	○	○	○
Creëer een (online)omgeving waarin alle relevante informatie beschikbaar is voor alle teamleden	○	○	○	○	○	○

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

* 16. Projectbeslissingen en problemen worden gezamenlijk aangepakt.

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Organiseer regelmatig gezamenlijke vergaderingen waar besluiten worden genomen.	○	○	○	○	○	○
Beloon en benoem in het team goed gedrag met betrekking tot het gezamelijk oplossen van problemen.	○	○	○	○	○	○
Maak afspraken over het gemeenschappelijk oplossen van problemen en bespreek deze in het team.	○	○	○	○	○	○

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

* 17. Conflicten worden constructief afgehandeld.

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Geef - voor een tijdige afwikkeling - de afhandeling van conflicten expliciet ruimte op de agenda van gezamenlijke overleggen.	○	○	○	○	○	○
Schakel een externe facilitator in voor het faciliteren van het geschillenproces.	○	○	○	○	○	○
Creëer een duidelijk geschillenbeslechtingsproces.	○	○	○	○	○	○
Maak afspraken over de wijze waarop (potentiele) conflictsituaties worden afgehandeld en bespreek deze met het team.	○	○	○	○	○	○

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

* 18. Er is een no blame cultuur.

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Maak tekortkomingen bespreekbaar in de project opstart (PSU) door hiervoor expliciet tijd te reserveren.	○	○	○	○	○	○
Organiseer periodiek een anonieme evaluatie van de samenwerking in het team en bespreek de resultaten met elkaar.	○	○	○	○	○	○
Richt het projecteam zo in dat er gelijkheid in plichten en rollen tussen teamleden van beide partijen onstaat.	○	○	○	○	○	○
Reflecteer regelmatig met het team, en identificeer en bemoedig situaties die bijdragen aan het opbouwen van vertrouwen.	○	○	○	○	○	○
Schakel een externe coach in voor het faciliteren van de samenwerking.	○	○	○	○	○	○

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

* 19. Er is een gedeeld gevoel van ons.

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Organiseer informele teambuildingsactiviteiten als borrels, excursies of het vieren van mijlpalen.	○	○	○	○	○	○
Organiseer formelere teambuildingsactiviteiten als coachingsessies en feedbacksessies.	○	○	○	○	○	○
Creëer een gezamenlijk 'merk', bijvoorbeeld middels een projectwebsite, een logo of gezamenlijk briefpapier.	○	○	○	○	○	○
Creëer één geïntegreerd team, zonder dubbele rollen bij opdrachtnemer en opdrachtgever.	○	○	○	○	○	○
Zorg dat routines, zoals werktijden en vergaderstructuren hetzelfde zijn.	○	○	○	○	○	○
Regel een gedeelde locatie waar het projectteam samen kan werken.	○	○	○	○	○	○

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

* 20. De opdrachtnemer wordt geselecteerd op basis van zijn samenwerkingscompetenties.

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Voer een samenwerkingsassessment uit in de aanbestedingsfase.	○	○	○	○	○	○
Laat opdrachtnemer een samenwerkingsplan opstellen als onderdeel van de tenderfase.	○	○	○	○	○	○
Breng de tendermedewerkers over naar de ontwerpfase.	○	○	○	○	○	○
Selecteer individuele teamleden op basis van samenwerkingscompetentie.	○	○	○	○	○	○

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

* 21. De financiële relatie is gebaseerd op vertrouwen en transparantie.

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Maak gebruik van open boek boekhouding.	○	○	○	○	○	○
Creëer een gezonde winstmarge door deze vast te leggen in het contract.	○	○	○	○	○	○
Neem vaste prijselementen op in de gunningscriteria voor elementen zoals uurloon en machinegebruik.	○	○	○	○	○	○
Ontwikkel de prijs periodiek en corriceer voor verandering in risico's of scope.	○	○	○	○	○	○
Laat opdrachtnemer in de aanbestedingsfase een gedetailleerde kostenraming maken.	○	○	○	○	○	○
Maak een gezamenlijke kostenraming parallel aan de ontwikkeling van het ontwerp in de 1e fase.	○	○	○	○	○	○

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

* 22. Van beide zijden is er betrokkenheid bij het project.

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Zet een gezamenlijk projectmanagementteam op.	○	○	○	○	○	○
Organiseer periodiek een stuurgroep met het management van beide moederorganisaties, zodat zij betrokken blijven bij het project.	○	○	○	○	○	○
Creëer een sterk mandaat voor het projectteam hebben bij het nemen van beslissingen.	○	○	○	○	○	○
Laat de toekomstige eigenaar en beheerder deel uitmaken van het projectteam.	○	○	○	○	○	○

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

* 23. Er zijn heldere en eerlijke afspraken over de overgang naar de tweede fase in het project.

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Maak duidelijke afspraken over intellectueel eigendom in het ontwerp.	○	○	○	○	○	○
Spreek bij de start van de eerste fase duidelijke Go/no go voorwaarden af voor de overgang naar de tweede fase.	○	○	○	○	○	○
Zorg voor een behoorlijke compensatie van de opdrachtnemer in het geval van een exit en neem deze afspraken ook op in de contractstukken.	○	○	○	○	○	○
Organiseer een training of webinar over het twee-fasen model bij de start van het project.	○	○	○	○	○	○

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

* 24. Er is focus op het doorvoeren van verbetering in het project

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Schakel externe expertise in op onervaren gebieden in de ontwerpfase.	○	○	○	○	○	○
Evalueer met hele team periodiek de samenwerking binnen het project in een open overleg.	○	○	○	○	○	○
Organiseer kennissessies waarin teamleden onderling kennisdelen.	○	○	○	○	○	○
Voeg financiële prikkels in het contract toe voor het behalen van projectdoelstellingen.	○	○	○	○	○	○

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

* 25. Er is aandacht voor het halen van de planningsdoelen

	Onbelangrijk		Neutraal		Heel belangrijk	Werkt tegen
Vraag in de aanbesteding om een duidelijke planning voor de eerste fase.	○	○	○	○	○	○
Monitor en herijk de planning periodiek gedurende het project.	○	○	○	○	○	○
Beloon het behalen van de planning met financiële prikkels.	○	○	○	○	○	○
Maak een gezamenlijke planning voor de eerste en tweede fase.	○	○	○	○	○	○

Extra werkmethode(n) die belangrijk zijn voor het implementeren van het principe:

Bedankt voor het invullen van de enquête. De resultaten van de werkmethoden en samenwerkingsprincipes zullen worden omgezet in een aantal voorstellen voor het ontwerp van de 1e fase. Deze voorstellen zullen worden geëvalueerd middels een tweetal focus groepen. De focus groep zal maximaal 2 uur duren.
Indien u geïnteresseerd bent in het deelnemen aan een focusgroep kunt u dit hieronder aangeven.

* 26. Wilt u deelnemen aan een focusgroep?

- ○ Ja
- ○ Nee bedankt

Indien u wenst deel te nemen aan een focus groep, zou ik dit graag telefonisch of via de mail toe lichten en kunt u hier uw gegevens achter laten.

* 27. Overige opmerkingen: